Cultures, Intersections, Networks. The Role of Algorithms in Defining Power Relations Based on Gender, Race, Class, Disability

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Abstract. Technological artifacts represent the historical-cultural products able to mediate our relationship with a world in continuous and rapid transformation. They, therefore, act as intermediaries with the environment around us and especially with the Other with which we are in "connection". Therefore, while technology is affected by the cultural influences of those who produce it, it also directly affects the process of individuation of subjects, social organization and politics, re-proposing and amplifying power relations. In a digitalized capitalist universe, where the dominant paradigms of reference are still white, cisgender, and able-bodied men, the proposal is to adopt an intersectional approach – one that simultaneously takes into account variables of gender, race, class, sexuality, and ability – to reread the bias of cultural choices and responses provided by algorithms.

Keywords: Technological artifacts · Algorithms · Cultural machines · Stereotypes · Intersection

1 Algorithms as Cultural Machines

Our thesis is that, in consideration of the importance acquired by algorithms in orienting people's choices and behaviors both in real life and, especially, in online life, it is appropriate to deepen the definition of algorithm as a *cultural machine*, starting from Vygotskij and his definition of cultural artifact: «All artificial tools […] serve 'the amplification of our senses' […] In the evolutionary process, man invented tools and created a civilized productive environment; but this productive environment transformed the man (or the human being) himself, and produced, instead of primitive forms of behavior, complex, cultural forms» [1].

The machine, in the Vygotskian sense, appears to be a hybrid between a social-historical product, transformed and perfected with the passing of time and the changing needs, and an instrument capable of amplifying individual capabilities and potentialities.

The present work is intended as the joint work of the authors. However, for the purposes of attribution of individual parts, it is specified that: Martina De Castro is the author of paragraph 2 and 3.3, Umberto Zona of paragraphs 1 and 3.2, Fabio Bocci of paragraph 3, 3.1 and 4.

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This kind of suggestion is still very powerful in thinkers such as Marshall McLuhan [2, 3], who looks at electronic machines as extensions of the body, or Andy Clark [4, 5], who sees digital devices as artifacts capable of extending the capabilities of the human mind. However, if it is true that the artifact, as a machine, has above all a function of empowering the individual body and mind, we should not underestimate the role it plays in regulating and conditioning the relationships between human beings. In order to effectively carry out their function of "orienting", algorithms need users' data of the Net; the more "sensitive" these data are, the more accurate the profiling of users is. Particularly "hungry" for data are the so-called "predictive" algorithms, whose function, according to the companies that use them, is to predict future behavior, in particular purchasing trends which, let's not forget, are the ultimate goal of any commercial entity operating on the Web. In reality, these algorithms are not able to prophesy anything, but, using machine learning, they continuously monitor the traces that each of us leaves during our surfing, comparing us with other subjects who have made choices and shown preferences similar to ours. It is our behavior as social individuals, therefore, that is kept constantly under control by multinational companies operating on the Net in order to suggest experiences that might be similar, even if not identical, to our preferences. O'Neil's [6] assumption that automated systems tend to further penalize poor people has been investigated in detail by Virginia Eubanks, who has suggested an effective parallelism between the poorhouse system, hospices for the poor established in the United States in the late seventeenth century, and today's automated decision-making systems, which have been transferred the power to decide, through the assignment of scores obtained by abstruse algorithmic calculations, the future of poor people. Eubanks concludes that «High-tech tools have a built-in authority and patina of objectivity that often lead us to believe that their decisions are less discriminatory than those made by humans. But bias is introduced through programming choices, data selection, and performance metrics. The digital poorhouse, in short, does not treat like cases alike» [7]. In fact, when algorithm designers do not have data about the specific behavior to be examined, they use proxy data, vicarious or indirect data, and «establish statistical correlations between a person's zip code or language choices and the likelihood that he or she will pay back a loan or be able to perform a particular job. Such correlations are discriminatory, and some are even illegal» [8]. This is why algorithms can be defined as artifacts that perform social actions and prescribe specific behaviors and we should not be surprised if they were used as tools of mass training, to influence people's conducts and build social consensus around a certain set of values and practices. It is for these same reasons that, in our opinion, algorithms cannot be considered simple mathematical constructs but, rather, real cultural machines that need, on the one hand, the technical knowledge of the designers who instruct them and, on the other, the flows of social knowledge that circulates on the Net, produced by the multitude of people who use it. It is, in essence, a circular process: the answers that the algorithm provides when it is interrogated are conditioned by the cultural criteria adopted in the design and supervision phase and can, in turn, influence (or reinforce) the set of beliefs and the Imaginary of the end users, as in the case of search engines, which we will deal with from now on, focusing our attention in particular on Google. To understand how relevant the role played by the Mountain View giant can be, it is enough to remember that, according to the Digital 2021 report, released

annually by *We Are Social* in collaboration with *Hootsuite* [9], Google, in December 2020, was the search engine with the highest web search traffic, with an overwhelming 91.4%. Google is therefore the most widely used search engine in the world – almost a monopoly and, since it was conceived and has its headquarters in the United States, Western culture and values have inevitably influenced the design and implementation process (we will see in a moment how the internal composition of Google's design teams is rather homogeneous and reflects established social hierarchies). Therefore, the fact that Google is also used in countries that have languages, traditions, histories, symbols, beliefs and institutions different from those of the West could represent, at least in some ways, a form of cultural neo-colonialism and constitute a serious risk for the survival of cultures other than the Anglo-American one. In recent years, there has been an increase in research supporting this claim. In 2016, Safiya Umoja Noble and Brendesha M. Tynes, for example, attempted to reinterpret the representations and structure of the Internet itself by having Black feminist Studies and the intersectional critical approach as their reference. They developed a model – the ICRTS (Intersectional Critical Race Technology Studies), defined as «an epistemological approach to researching gendered and racialized identities in digital and information studies» [10] – to denounce that «the blind spots of a model are a reflection of the assessments and priorities of its creators. […] We need to ask not only who designed the model but also what purpose that person or company set out to achieve» [11]. These pitfalls, on the other hand, have long been highlighted in institutional settings as well: in 2013, the United Nations launched an awareness campaign aimed at bringing out what the public thought about women. To make the message more incisive also on a graphic level, the campaign featured a series of ethnically marked female faces, whose lips were replaced by Google Search suggestions obtained by typing words such as "women cannot", "women should not", "women should", "women need to" (see Fig. 1).

By entering these phrases into the search string, Google provided the following suggestions:

- *Women cannot*: drive, be bishops, be trusted, speak in church;
- *Women should not*: have rights, vote, work, box;
- *Women should*: stay at home, be slaves, be in the kitchen, not speak in church;
- *Women need to*: be put in their places, know their places, be controlled, be disciplined.

As Noble points out, however, the campaign, rather than highlighting the sexism of the world's most powerful search engine, «suggests that search is a mirror of users' beliefs and that society still holds a variety of sexist ideas about women. What I find troubling is that the campaign also reinforces the idea that it is not the search engine that is the problem but, rather, the users of search engines who are. It suggests that what is most popular is simply what rises to the top of the search pile» [12]. But this consideration, as we will try to bring out, does not exhaust the issue since sexist, racist, classist and ableist stereotypes are not only strongly rooted in public opinion but are implemented in the same algorithmic logics. If it is true, in fact, that the search criteria of monopolies like Google reflect the dominant culture and the distortions that it brings with it, it is equally true that, since the Mountain View company, like all others, is primarily aimed at profit, it does

Fig. 1. 2013 UN Women awareness campaign.

not care about the consequences that the proliferation of stereotypes and toxic frames – which it itself increases – can have on people's behavior. The latter is a secondary aspect because, while the opinions of other individuals can be easily questioned or be a reason for comparison, the news and information we find on the Net tend to be uncritically assumed as true, only because a search engine like Google, which is considered *a priori* reliable and objective, has presented them to us and organized them in a hierarchical list. The idea that Google's suggestions or results are hierarchically organized only on the basis of the most popular searches or the most visited sites appears at this point as a false belief, since the information is oriented towards the advertising interests of companies.

Users, in essence, are satisfied by having access to Google and all the services it offers for free (Gmail, Drive, Meet, Maps, YouTube), while Google – as a commercial platform – earns from the data it collects on each user (which, often, are given to other companies). But since it is the data that allow to "personalize" the surfing through advertising suggestions "sewn on" to the Internet user, Google needs continuous interactions to find such data and needs, consequently, the "work" of the users to implement its algorithms. It is illusory, therefore, to believe that the search results we get when we do a search on Google are objective or neutral, since most of the links that are proposed to us, organized according to a hierarchical logic, are advertisements. This is done, as openly stated, because the activities performed on Google services and other websites and apps after logging in are similar to those of people who have told Google that they belong to those demographic categories in which we are then placed as well.

In December 2018, DuckDuckGo – a search engine whose stated philosophy is to improve search relevance by focusing on the privacy of users whose searches and personal information are not stored – released a study titled *Measuring the "Filter*

Bubble": How Google is influencing what you click, the purpose of which was precisely to analyze how Google's filter bubble works: «These editorialized results are informed by the personal information Google has on you (like your search, browsing, and purchase history), and puts you in a *bubble* based on what Google's algorithms think you're most likely to click on. […] You might think that as long as the same links are shown to users, the ordering of them is relatively unimportant, but that's not the case. A given link gets only about *half as many clicks* as the link before it and *twice as many clicks* as the link after it. In other words, link ordering matters a lot because people click on the first link much more than the second, and so on» [13]. Google, then, seems to organize our search results based on the information it deduces from the profiles it collects in Ads Setting for each of its users, and the personalization of ads – but, by extension, also the hierarchical organization of the links that are proposed to us when we perform a search – occurs based on the information we voluntarily added to our Google Account, the data accumulated by advertisers who collaborate with Google and who, therefore, are interested in mapping our tastes, while our desires are deduced directly by Google through comparison with other users related to us.

For the purposes of our discussion, the social composition of intellectual workers employed at large Silicon Valley companies is of particular relevance, since they are predominantly male and white, as the annual Inclusion and Diversity Reports show. In Apple's technology sector, for example, in 2020 male employees accounted for 76% of the total, whites were 44%, and Asians were 39%. Hispanics/Latinx (8%), Blacks (6%), Indigenous (1%), and multiracial individuals (2%) all together accounted for only 17% of the total [14].

Data from Facebook's Tech sector are updated as of June 30, 2021, and depict a similar situation in terms of differences in the sexual composition of the workforce (males, in fact, represent 75.2% of the total), while, from an ethnic point of view, there is evidence of the overtaking of Asians (54.4% of the total) over whites (35.6) [15]. Let's now delve into the social composition of Google's Tech sector, drawn from the 2021 Diversity Annual Report [16], starting by saying that the report distinguishes between workers in the U.S., those in Asia Pacific (APAC), Europe, Middle East and Africa (EMEA) and the Americas (AMERICAS), and the differences, at least from the perspective of ethnic representation, are notable. In terms of the total number of workers employed at Google, we see that from a racial/ethnic perspective, in 2021 in the U.S., whites account for 50.4% of workers – establishing themselves as the majority group, albeit down from 2020 when they were 51.7% – while Asians are 42.3% of the total, up 0.4 percentage points from 2020. Other ethnic groups, on the other hand, are heavily in the minority: Latinxs represent 6.4%, blacks 4.4% and Native Americans 0.8%. We find it interesting to compare these figures with those of Google workers in the APAC region, where Asians make up 85.8% of the workforce and whites 13.8%, while the representation of groups such as Blacks/Africans, Hispanics/Latinx, Indigenous people, and Middle Easterners and North Africans is just over zero. In EMEA, however, these power ratios appear to be completely reversed, as whites represent 80.4% of the total and Asians only 10.9%, a percentage very similar to that of Middle Eastern and North African workers (7.3%). In the Americas, however, we have a majority of whites and Europeans (48.2%), followed by Hispanics/Latinx (33.3%) and Asians (21.8%). If, on

the other hand, we look at gender representation, no particular differences emerge in the various areas mapped by Google, where women always appear to be in the minority: they make up 32.2% of the workforce in the United States, 32.7% in EMEA, 34.6% in APAC and 31% in the Americas.

The U.S. team that monitors Google's Diversity, then, also constructed an intersectional graph that shows that those at the intersection of multiple identity axes are the least represented. If we now look only at those in leadership positions at Google, we can see a significant growth in the percentage of whites in each area under consideration and a concomitant decline in other ethnicities. In the U.S. and EMEA and the Americas, where the white presence was dominant even in the graphs referring to total workers, we see it grow to 65.5% in the U.S. and even reach 87.7% in Europe, the Middle East and Africa, while in the Americas the growth is more limited (the greatest increase is that of Hispanics/Latinx, which reaches 43.8%). In Asia Pacific, however, where total white workers were only 13.8%, they reach 28.8% in leadership positions. On the other hand, if we look at the gender differences in the representation of Google's leadership positions, we can see a general decrease of women in all estimated areas. They decrease to 26.9% in the US and EMEA, 29.2% in APAC and 29.8% in the Americas.

Regarding the intersectional representation of leadership positions in the United States, we can see a growth in the percentage of white women in these roles relative to the intersectional representation of total workers, but a decrease in Asian women, black women, Latinx women, and Native American women. These data seem to us to be further confirmation of what has been stated in the previous pages, namely that there remains an important power imbalance between those who fall into traditionally hegemonic categories – in which masculinity and whiteness dominate – and those who are excluded from them and who, for this reason, suffer a range of discrimination. To hold leadership positions in Google, in fact, means to have the possibility to influence the choices of the company but also, as we have seen, the culture of the Net users themselves.

2 The Intersectional Interpretive Key

As we tried to argue in the previous paragraph, we look at technological artifacts as historical and cultural products that mediate our relationship with a world in continuous and rapid transformation [17]. In this perspective, they would act as intermediaries with the environment around us and, above all, with the Other with whom we are in "connection". Technology, in other words, on the one hand would be marked by the cultural influences of those who produce it and, on the other, is capable of directly affecting the process of identification of subjects, social organization and power dynamics, reproducing and amplifying power relationships. When we talk about culture, referring to the theories of Lev Vygotskij and those developed within the Centre for Contemporary Cultural Studies at the University of Birmingham, in fact, we do not refer to the level of civilization reached by a specific society, as a reading of this type would risk to imply a presumed superiority of Western culture. Culture, on the other hand, is always plural, referring to particular lifestyles and ways of thinking that characterize social beings; consequently, within the same national borders different cultures can coexist. Therefore, culture is not only the one considered high, the academic one, but also the popular and working class

one, the female one, the black one, the disabled one, as highlighted by white and black feminist criticism and Disability Studies. Nevertheless, due to the unequal power relations historically determined at global level, the culture that continues to be perceived as preferable and, consequently, as dominant is the white, male, heterosexual and abilist culture, presented as the only one possible. Those who do not fall into this category, therefore, undergo a process of stigmatization and alteration that disempowers them and relegates them to the margins of public debate. Our corporeality is, therefore, read and interpreted on the basis of the power relations that characterize our societies.

Machines are destined to assume an increasingly important role, not only for the sophisticated tasks that are assigned to them (for example, in the field of production of goods and services) but also for the high level of interfacing with the human element, which is already so developed today that we can define them as "transparent technologies" [18]. We no longer perceive them as devices that communicate with our bodies, but rather as a technological "upgrade" of our physical person (in the form of extension and enhancement of our mnemonic capabilities, or as support in the resolution of everyday problems or, in the case of bionics, as a real machinic graft). Our migration towards the cyborg dimension began at the end of the last century [19], when progress in robotics was accompanied by progress in artificial intelligence. The price for the unquestionable help provided by digital technologies, which we would probably no longer be able to give up, is the more or less conscious transfer of an enormous amount of personal data. All our searches on the Net, for example, are tracked and provide essential data to the Giants of the Platforms (Google, Amazon, Facebook, etc.), who use them to set up extremely detailed files on the habits and behaviors of all their users (as in the case of Google Ads Settings). It is for this reason that search engines, social networks, e-commerce and content sharing sites seem to know us so well as to recommend products that are similar to our tastes and, often, perfectly suited to our needs. A regime of permanent surveillance is the *conditio sine qua non* on which to implement increasingly powerful and sophisticated personalization services. The more the mass of data we release on the Net grows, the more it becomes impossible for human capabilities to process it in order to obtain reliable profiling. It is at this level that algorithmic power takes over. The decisions, the questions asked and the goals set by the company and, by extension, by those involved in designing and training the algorithm, directly affect the answers the machine provides. In a digitized capitalist universe, therefore, where the dominant paradigms of reference are still proposed by monopolies such as Google and the teams in charge of designing and training the machines are predominantly made up of white, cisgender and able-bodied men, it is not surprising that the answers provided by the algorithms are often biased, capable of conveying stereotypes and prejudices and of osmotically transferring part of the hegemonic culture. As a result, if the dataset on which the algorithm practices is not diversified by gender, race, class and disability, the machine returns a view of things often marked by biases and stereotypes that can reinforce social asymmetries and injustices [20].

The power of the Internet as an informal educational agency is not comparable to any other mass media or formal educational agency, but this also poses significant problems for democracy: first, the reach of the Net is global but it does not guarantee adequate representativeness to the cultures expressed by the different social groups that populate it,

transforming itself, in fact, into a neo-colonial device capable of flattening any deviation from the norm through the supposed neutrality of mathematical language; secondly, since the personalization of results – obtained by placing each user of the Web within a filter bubble along with other subjects who have acted similar digital behaviors – is reflected in the hierarchical organization of search results, it ends up determining what users can or cannot see and, consequently, directly affects their culture, defining on the basis of past choices also their future.

The approach that moves our research is deliberately political, transformative and emancipatory and is aimed at fostering a critical understanding of the illegitimate constraints – based on repression, control and domination – that limit individual autonomy and freedom not only in real societies, but also on the Web.

From the methodological point of view, we started from the screening of national and international literature on the topic and proceeded to trace a series of significant examples of sexist, racist and ableist stereotypes that circulate online. The "cases" examined are in continuous and constant expansion both quantitatively and qualitatively, since the search suggestions, the images proposed by the different browsers and the answers provided by the virtual assistants modify and change very rapidly. Mapping the differences, the oscillations, even if minimal, of meaning contributes significantly, in our opinion, to create a picture of what are the power relations and the ways in which stereotypes and prejudices regarding other bodies are built and socialized. Events of global scope – such as the pandemic phase we are currently going through – not only make social imbalances increasingly evident but are also capable of producing profound changes in behavior and imagination. And the Web is probably the environment that, by its very nature and thanks to the immense amount of information it conveys daily, allows us to take account of these fluctuations.

The key to interpreting these phenomena has been the intersectional one [21, 22], which has allowed us, on the one hand, to contemplate simultaneously the identity variables of gender, race, class, sexual orientation and disability and their recombination on the level of the subject and, on the other, the parallel structuring of related forms of oppression and marginalization: sexism, racism, classism, homophobia and ableism. Considering that power is multidimensional and uses effective offline and online devices to maintain and reinforce social hierarchies, the intersectional approach allows us not only to investigate the persistent power relations existing in the public sphere, but also to make sure that minority cultures are the first to speak and to start transformative processes, without the application of interpretative paradigms derived from the majority ones, the Western ones, going to obscure the complexity of points of view, traditions, lifestyles. The intersectional construct, in fact, aims to mediate the tension between:

- multiplicity, in that the different identity axes recombine in the individual Other in very particular ways, but, depending on the corporeality to which the intersection of these identity lines gives rise, specific systems of oppression are determined;
- globality, since, in order to avoid the risk of an excessive fragmentation of instances and claims and of giving birth to constellations of micro-groups whose voices would be too weak to be heard, it is necessary to adopt a collective political perspective, which can effectively face oppressive systems and propose multiple and new paradigms

of interpretation of complex events. This would also avoid elaborating universal, ahistorical and decontextualized critiques.

In other words, we think that intersectionality should highlight the links between complexity and forms of power and analyze the social and cultural hierarchies formed within it. In other words, in our opinion, intersectionality theory should not be used as a merely descriptive taxonomy of existing differences in identity (if this were the case, it would be a projection of multidisciplinarity rather than transdisciplinarity) but should give voice to subjects and space to their claims, so as to allow us to trace possible points of contact and avoid that they become sclerotized in the form of subcultures, ending up flattened into those processes of marginalization that Creenshaw identifies as one of the causes of the impotence of social movements.

3 The Research

The purpose of this work was to conduct an inter and transdisciplinary research that would attempt to hold together – in an intersectional perspective – different theoretical and methodological approaches: those of Cultural Studies, Postcolonial Studies, Feminist Research, Black Women's Studies, Critical Race Studies, Disability Studies, Feminist Disability Studies, and Disability Studies and Critical Race Theory in Education, all the way to Media Studies and Intersectional Critical Race Technology Studies. This choice was made in an attempt to better understand how the power wielded by a Net mastodon like Google works, to delve into the kind of information and culture it is able to convey, but most importantly to «demonstrate how commercial search engines such us Google not only mediate but are mediated by a series of profit-driven imperatives that are supported by information and economic policies that underwrite the commodification of women's identities» [23], of black people's identities, of poor people's identities, and of disabled people's identities. Typing on Google Images a variety of keywords (for example: black man, nurse, lesbian, schizophrenic) that held together the identity variable of sex with those of race, class, sexual orientation and disability, in fact, we had the opportunity to note that most of the results obtained contributed to reinforce already widespread stereotypes and prejudices. Trends that are already present in our real societies, such as the underrepresentation or stereotyped representation of other subjectivities (women, blacks, poor, disabled, gays, lesbians, transgender, etc..), in fact, seem even increased in virtual contexts. If on the one hand, therefore, algorithmic machines are affected by and reflect the dominant culture, on the other hand they seem to be able to further reinforce and crystallize traditional systems of oppression and their power relations at a global level.

The goals that guided the research, accordingly, were:

- analyze algorithms as cultural constructs;
- track and critically analyze a range of sexist, racist, and ableist stereotypes conveyed in Google image searches;
- map stereotypes and prejudices of teachers and future teachers in training towards the variables of gender, race, class, sexual orientation and disability and detect their trust in the mass media;

– raise awareness among teachers of all levels and future teachers on the need to develop a "culture of the Web" in students in order to introduce them to the potential and hidden pitfalls of the Web.

The basic hypothesis that guided our research, therefore, is to further verify to what extent the Net and the new digital technologies constitute "non-neutral" devices, i.e., complex cultural constructs within which the social system inoculates a certain set of values and behavior patterns. The latter feed and condition the collective imagination by conveying "toxic" frames – such as stereotypes of sex, race and ability – creating consensus towards dynamics and mechanisms that we could define as "neocolonialist". Since, in the technological societies we live in, the boundaries between formal and informal education are becoming increasingly blurred, the risk is that stereotypes and biased and artifactual information will have cultural and social repercussions on the lives and worldviews of Net "surfers", especially the younger ones.

3.1 Sample

The non-probabilistic sample that participated in the research consisted of 304 people. More in detail: 159 teachers of all levels belonging to the "Ambito 15 di Roma" and the IC "Soriano nel Cimino" engaged in training courses on the new discipline of civic education, 102 support teachers enrolled in the TFA (Tirocinio Formativo Attivo) Sostegno 2020 and 43 students of the Degree Course (CdL) in Primary Education Sciences (SFP) of the Roma Tre University who participated in the Laboratory of Didattica Inclusiva (Channel 3) (Table 1).

Table 1. Sample characteristics.

Group	Gender	Frequency
Training courses teachers	Male	7
	Female	152
	Non binary/other	0
TFA 2020 teachers	Male	13
	Female	89
	Non binary/other	0
Future teachers	Male	2
	Female	40
	Non binary/other	1

The choice of conducting the research with a sample of teachers and future teachers was motivated by the fact that their culture and their beliefs, deriving at least in part from the media content they prefer and enjoy, could have direct effects on the students with whom they are/will be interacting in formal educational contexts, but also by the belief that the development of a critical awareness by the new generations about the potential and risks associated with digital media and environments inevitably passes through them.

3.2 Methodology

In order to be coherent with the objectives and hypotheses, it seemed to us that the most appropriate methodology for conducting the research was the multiparadigmatic one, which allowed us to keep together the qualitative, quantitative and critical-participatory dimensions [24]. Consequently, through the technique of case analysis applied to the digital context, we used the qualitative conceptual framework to trace and critically analyze a series of sexist, racist and ableist stereotypes conveyed through Google image searches. By means of the theoretical-critical study and the research-intervention – which was carried out within the Laboratory of Didattica Inclusiva Channel 3 academic year 2020–2021 with the students of Primary Education of the Department of Education at Roma Tre, in training courses with teachers of all levels and during the TFA course 2020 activated at Roma Tre University – instead, we analyzed the algorithms as cultural constructs and tried to raise the awareness of teachers and future teachers on the need to develop a "culture of the Web" in students, in order to let them discern the potential and hidden pitfalls of the Web. Finally, we used quantitative techniques mapping stereotypes and prejudices of teachers and future teachers in training against the variables of gender, race, class, sexual orientation and disability and detecting the trust they place in the media through the administration of the Intersectional Questionnaire (QuIn). The decision to use mixed methods of investigation, therefore, resulted from the need to hold together the qualitative vision, «which tends to see reality from the subjective point of view (internal) of those who live it, with the eyes of those who live the reality under investigation» [25], the quantitative one, aimed at objectifying reality and the methods of investigation, and the critical-participatory one, «which theorizes an inevitable and necessary interdependence between who carries out the research and the object studied, between who investigates and the subjects of investigation. […] Participatory research therefore aims to critique the ideologies, the organizational and institutional forms that determine power relationships, to improve individual as well as groups, communities and societies conditions […] and contrast to the inequalities» [26].

The research-intervention, in fact, was conducted in the form of a training course with teachers already in service and with those involved in the TFA [27], while with the "future teachers", still enrolled in the SFP, a more laboratory form was chosen.

The latter were then randomly divided into two groups:

- Group A – divided into four subgroups that participated in the focus groups – commented on some Google Images screenshots identified by the researchers, reported below, and referring to specific social categories.
- Group B searched Google Images for five keywords, cross-referencing the variables of: sex and social role (e.g., work or family role declined to male or female); sex and race (e.g., Italian woman, black man, etc.); sex and (dis)ability (e.g., man with syndrome…, autistic woman, etc.); sex and sexual orientation (e.g., lesbian, gay, heterosexual, etc.).

3.3 Results

Below are some of the most significant screenshots tracked on Google Images conducting the research in italian. For this reason the keywords are in Italian, because as the

language changes, so do the visual representations of the subjects. The term "infermiera" is obtained from the intersection of the sex variable with the social class variable. We conducted the search for this term a first time on December 3, 2018 and the results provided by the search can be seen in Fig. 2.

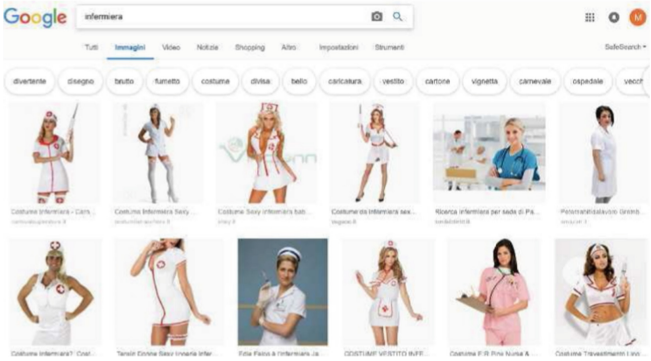

Fig. 2. Google Images result for "infermiera" on 3 December 2018.

Of the 12 images that appear, only one – the fifth in the first line – depicts a professional in scrubs, smiling at the camera with her arms crossed and the stethoscope around her neck. The sixth image in the first row and the fifth in the second one depict a woman in white scrubs and a woman in a pink uniform and refer to sites for purchasing nurses' uniforms. The third image in the bottom row depicts actress Edie Falco dressed as a nurse in the television series Nurse Jackie. The remaining eight images depict women in skimpy outfits and seem to derive from Italian sexy comedies of the 1980s and appear to be the product of male erotic imagery, which very often attributed a strong sexual charge to 'helping professions'.

Searching on Google Images for the term "infermiera" in two different historical phases – pre-pandemic and post-pandemic – we can see how the representation of the profession has changed. If in the previous case, in fact, the image of the nurse returned by the search engine was sexy, following the global spread of the Covid-19 virus, the type of narrative about the nurse's professionalism has transformed. The image returned on June 7, 2020 (see Fig. 3) was that of an angelic woman – sometimes even depicted with wings – exhausted by grueling shifts, falling asleep at her desk at the end of the shift and dressed in scrubs and masks that transfigure her silhouette.

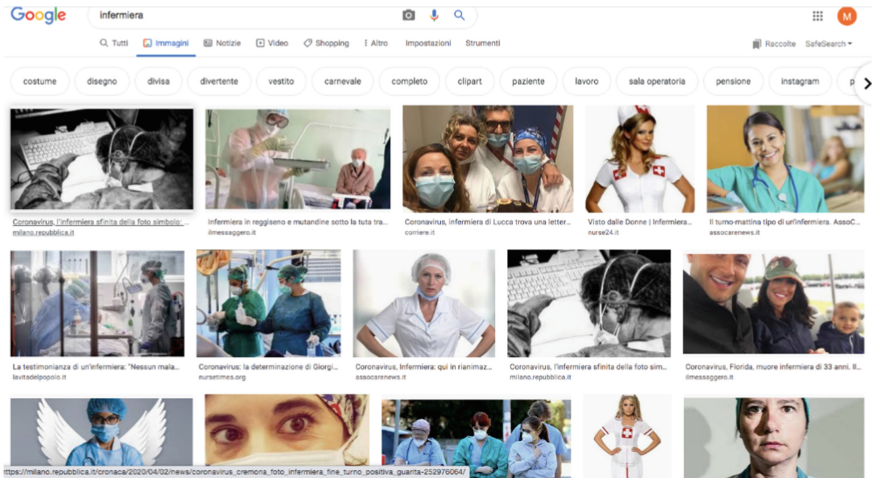

Fig. 3. Google Images result for "infermiera" on 7 June 2020.

The difference in imagery associated with the "uomo nero" in Italian –represented as a monstrous being from fairy tales (see Fig. 4) – has no counterpart in English, where most of the photos proposed for the search 'black man' refer to the struggles for black self-determination. The fact that a search engine like Google accepts that the first images you get by typing 'uomo nero' are scary beings rather than black men seems to us to perpetrate another unacceptable racial prejudice.

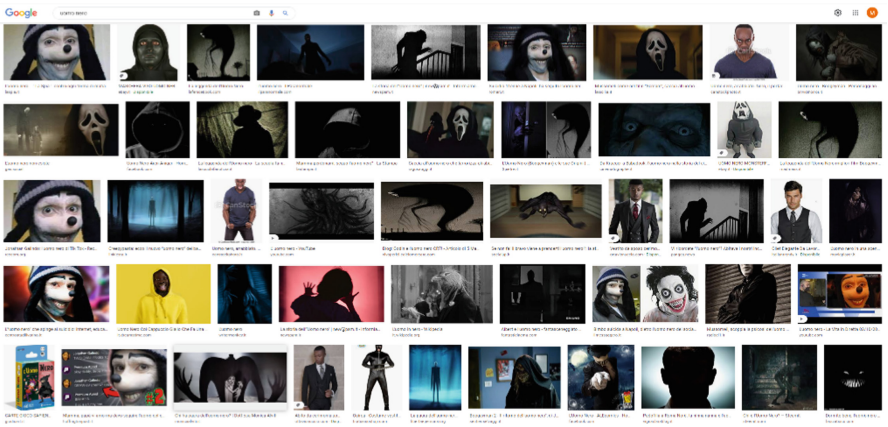

Fig. 4. Google Images result for "uomo nero" on 7 October 2021.

The following screenshots (Fig. 5) were obtained using the keywords 'Rumene'. In Italian, the representation that emerges seems to oscillate between the sexy woman available to the Italian male – hence the reference to dating sites – and, on the other hand,

the wanted woman stopped by the police and portrayed through a mug shot or accused of prostitution.

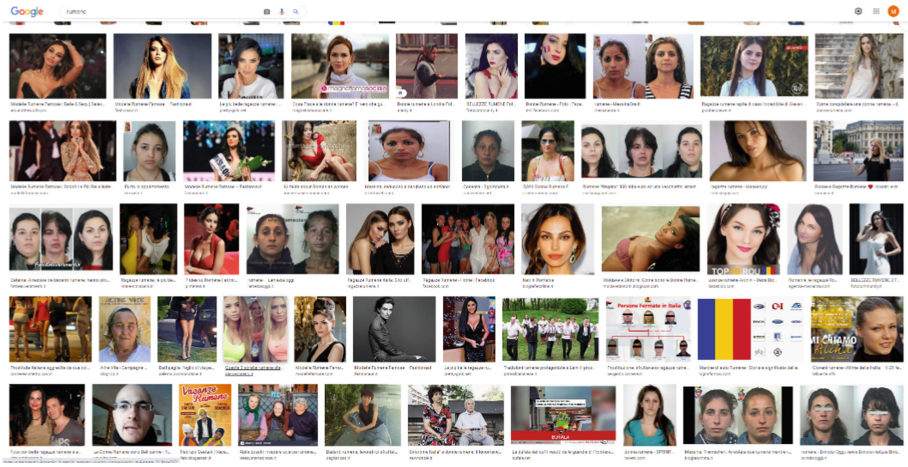

Fig. 5. Google Images result for “rumene” on 7 October 2021.

Of the 48 images (and related links) that Google Images proposes as search results for “Rumeni” (see Fig. 6), 36 represent them as criminals. A stereotype already widely spread in society would therefore be confirmed through simplifications and conventional representations, homologating and dangerous even on the web.

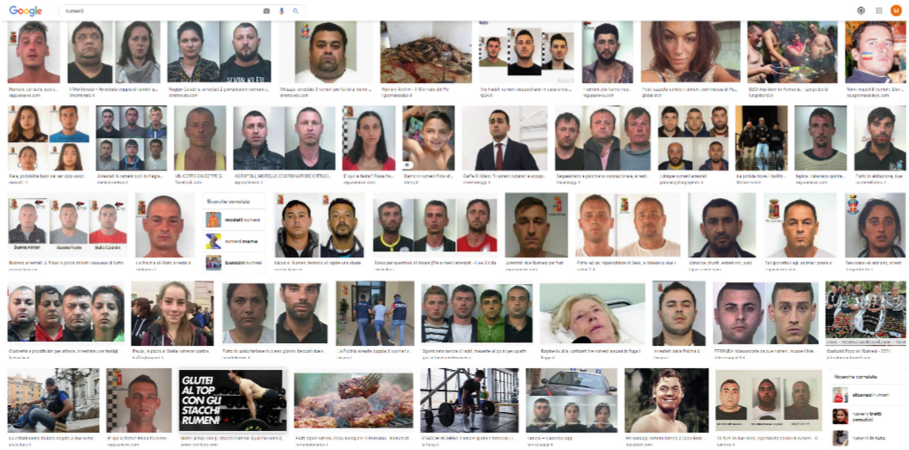

Fig. 6. Google Images result for “rumeni” on 7 October 2021.

The comments that emerged from the focus groups (group A) and the Google Image searches conducted by the students in group B are also coherent with the results

obtained by the researchers, but for a more comprehensive overview, please refer to future publications on the topic.

By analyzing the responses provided by teachers and future teachers to the Intersectional Questionnaire (consisting of 62 questions: 10 on the sex/gender variable, 12 on race, 11 on sexual orientation, 10 on ability/disability, 10 on the pandemic crisis and its possibility of modifying or maintaining traditional social hierarchies, and 9 on the media), it was possible to detect the most recurrent respondents' stereotypes and prejudices about gender, race, sexual orientation and ability/disability variables. Below are some of the responses that induced us to reflect most.

In response to the question *In your opinion, are there immigrants who create problems of law and order*, a considerable percentage – 33.3% of teachers in training, 28.4% of teachers enrolled in the TFA and 25.6% of future teachers – believe that there are immigrants who create problems of law and order (question 18) and identify Romanians and Albanians as the ethnic groups most likely to commit crimes, while the African continent is the one most cited in this regard (question 19).

When asked whether *issues involving gender differences and the problems of the LGBTQI community should be addressed in school*, 85.3% of TFA teachers, 79% of future teachers and 64.1% of teachers in training courses (28.9% of the latter group shows uncertainty) agree that it is necessary to activate training courses that address gender differences and the LGBTQI community (question 32).

The concept of normalcy is echoed in the statement *Children with disabilities can achieve higher levels of normalcy through therapy* (question 40): 64.2% of training teachers (26.4% neither agree nor disagree), 45.1% of TFA teachers (35.3% neither agree nor disagree), and 51.2% of prospective teachers (20.9% neither agree nor disagree) agree and completely agree.

It is probably because of a system of thinking that is oriented toward integration rather than inclusion that the majority of the sample (71.7% of TFA teachers, 64.7% of TFA teachers, and 62.8% of prospective teachers) support the establishment of a Ministry of disability (question 42), an institution built ad hoc to deal with "special" people. In the section on the pandemic crisis, when asked about a hypothetical strategy of preferring males over females (question 46), implemented by employers to overcome the crisis, over 80% of respondents in the three groups disagreed and completely disagreed (specifically, 80.6% of TFA teachers, 84.3% of TFA teachers and 93.1% of future teachers), while with reference to the equally possible strategy of preferring Italians to foreigners (question 49), the percentage of those who disagree drops to 50.3% for the group of teachers in training courses, to 52% for TFA teachers and 67.4% for future teachers. It would seem, then, that the choice to favor a certain race over a certain gender is more accepted.

The mass media, on the other hand, are perceived by the majority of members of the three groups as having a positive function in overcoming stereotypes and prejudices about the female figure (question 55), differences in sexual orientation (57), multiple ethnicities (59), and different forms of ability and disability (61) present in our societies.

4 Conclusions

In conclusion, referring to our research objectives, we can highlight how even educational figures, such as teachers in service or in training, suffer from some stereotypes

and prejudices in dealing with the variables of gender, race, sexual orientation and ability/disability. This is a fact, in our opinion, on which to reason and that would deserve further investigation, since teachers have the power to influence learning and beliefs of the students with whom they are in daily contact. If, therefore, teachers become spokesmen, directly or indirectly, of the dominant culture – whose contents can also be found on the Net by conducting a Google image search – the risk is that the new generations will passively absorb it. At the same time, treasuring the trust that these educational figures seem to place in the media as vectors of conscientization, the socio-cultural relevance of these themes and the centrality of training not only for children and young people, but also for the trainers themselves, emerges clearly from the experience of the workshop with future teachers [28].

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