'Being a Woman' and 'Being a Scientist': Contributions to Women Participation in Science

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Abstract

This paper deals with the social perceptions of being a woman and being a scientist in Brazil. Women made many scientific discoveries even before feminist movements took a place in the fight for women's rights. Although more qualified than men, women still do not occupy the spaces of power. This is reflected in the representation of girls and women who could enter scientific courses but are discouraged. In this sense, the objective of this study is to understand how social media can collaborate to encourage the participation of women in science. We use a qualitative methodology to analyze YouTube channel videos from women scientists in order to understand what makes a video have more views than others on these channels. We conclude that social media can contribute to women entering science, since they can provide women scientists with a role of social representation. However, it is necessary that the content published on social media is not a mere reproduction of scientific articles. It takes an accessible language to reach the maximum number of people.

Keywords
Social Media, Female Protagonism, Brazilian Science, Scientists, YouTube.

1. Introduction
The report written by historian Rebecca Solnit (2017), states that 'there are specific ways to silence specific people, but there is also a culture that empties women's speech, making it clear that men's voices count more than theirs', illustrates some of the silences suffered by women in scientific areas, such as having their intellectual capacity questioned by men in positions of power. So, we started this work that, silently, carries a voice. If we cannot revolutionize the whole world, we can take the places and reform them, putting those who represent us in power.

Behind the scenes of the laboratories, in the dusty sheds, between the lines of the discoveries, the work of many of us is deposited. Women make up a silent body that supports the history of science. As illustrated by Ignotofsky (2017), the literature is full of examples: Hypatia (between 350 and 370-415 AD), Marie Curie (1867-1934), Lise Meitner (1878-1968), Rosalind Franklin (1920-1958) and so many others.

However, there are still women paralyzed by the excess of responsibility imposed by a hegemonically patriarchal society. In the words of Estés (2018) "There are women who insist on cleaning everything inside the house before they can sit down to write" (Estés, 2018, p. 351). If there is a democratic way to balance the spaces of power, I believe that it involves Education. Thus, the problem of this research is presented: Can social media assist in the visibility of women and encourage women to enter Science?

According to the data published in 2019, by the National Continuous Household Sample Survey (PNAD), the Brazilian population is composed of 51.8% women and 48.2% men. Women are the majority, not only when representing the population, but also when representing the level of education. Women are more qualified than men; however, it is men who occupy most leadership positions and, consequently, have higher incomes, about 30% more than women. In Brazil, they represent about 54% of doctoral students; number corresponding to developed countries. However, they represent only 24% of the productivity grant beneficiaries and 14% at the Brazilian Academy of Sciences. In this sense, the question is: how to contribute so that women occupy prominent places in Science?

Government policies and programs, aimed at reducing the segregation of women, can encourage a more equal participation of genders in the University and in scientific activities (Olinto, 2011). Pupo et al (2017) suggest that cultural products, such as films and video clips, can help women's visibility in scientific professions. The authors state that scientific dissemination is increasingly necessary, especially for women, blacks and people from lower social classes, as they are those who are far from this knowledge.

Giving visibility to the work done by women is one of the ways to strengthen the struggle. Based on this statement, it can be said that social media made the feminist movement reappear. However, the women's struggle had not disappeared; it was imposed on traditional media that delimited the information content and the audience reached.

1.1 Objectives
Analyze the historical and social context of being a female scientist and understand how social media can encourage women to enter scientific fields. Specific objectives: (i) Identify female scientists on YouTuber social media; (ii) Analyze the effects of using social media to stimulate the presence of women in science.

2. 'Being woman' and 'Being scientist'

According to Blickentaff (2005) the problem of female under-representation in science, technology, engineering and mathematics (STEM) careers and majors is certainly not a simple one. For instance, White and Massiha (2016) explores the many challenges women encounter when pursing a career in the sciences. The history of women is not disconnected from the history of society. The women's struggle is the class struggle. "The condition of subordination of women to men is a historical construct connected to the relations between the sexes and their participation in activities related to the survival of the group" (Cruz, 2012, p. 3). This persisting gender gap is relevant not only for gender equality but also for the supply of qualified labor in science-oriented jobs (Legewie and DiPrete, 2018).

To understand what it means to be a woman and the specifics of women's lives, it is necessary to understand how women and men are constituted as social subjects, in the context of contemporary society. As presented by Freehill et al (2015) , although the representation of women varies within and across scientific fields, it is still the case that, in most fields and in most contexts, women are consistently underrepresented in effective decision-making and leadership positions, even in fields in which they reflect high levels of degree attainment and scientific expertise.

Widely explored in feminist studies, the social relations established between women and men, power relations, seem to have their genesis in the constitution of societies, as well as in the sexual division of labor. This would explain, among other things, the naturalization of domestic work and care for children (in addition to generating them) as belonging to the female world, as well as, on the other hand, the social insertion of men in the public space (Fonseca, 1999).

Federici (2019) addresses issues about women's work and how women have been fighting for more space in institutions. Women are gaining more autonomy and independence, but domestic work has not disappeared. In this sense, we can say that there are two types of work: paid work and unpaid work. And women are at a disadvantage in both types.

Ahlqvist et al (2013) showed longitudinally that the stability of gender-STEM compatibility influenced not only individuals' subjective experience in STEM domains but also their objective performance in STEM courses. The consistency of the findings across both subjective and objective indicators of belonging and success during the following academic year demonstrates the predictive utility of fluctuating gender-STEM compatibility.

Data from the Organisation for Economic Cooperation and Development (OECD) show that the overall proportion of female doctors has increased from 29% in 1990 to 46% in 2015, suggesting a trend towards increased participation of women. However, the variation in participation rates across countries continues to be striking, suggesting a substantial impact of local social norms and cultural influences (Coe et al, 2019). By the same token, Stoet and Geary (2018) concludes that regardless college processes that exaggerate sex differences, they are abated or overridden in less gender equal countries.

Gaule and Piacentini (2017) findings suggest that increasing the number of potential female advisors may increase the share of female students eventually pursuing academic careers. Hence, hiring more women faculty members may not just have a direct effect on faculty gender ratio, but also indirectly raise future female representation through influencing the career choices of female students. Sonnert et al (2017) also stands for this perception, declaring about initiatives to improve gender equity in undergraduate degrees received in science and engineering, positive relationship between the percentages of women students and women faculty at least suggests that the presence of more female faculty may facilitate the participation of undergraduate women in science and engineering.

Another issue it should not left aside is developing inclusive research practices also means addressing issues relevant to women of color in STEM. As suggested by Johnson (2011):

> Increasing knowledge about women of color in STEM areas requires inclusive research practices, such as developing research designs that examine racial and ethnic differences, describing the racial and ethnic composition of samples, and considering issues of race and ethnicity in interpretation and discussion of the results, along with acknowledgment of the limitations associated with racially homogeneous samples. In studying students of color in STEM, gender differences should be analyzed and discussed, and multiracial women should be included in research samples given their increased representation on many campuses (JOHNSON, 2011, p.82).

According to Dasgupta and Stout (2014), no single cause creates the leaky pipeline of girls and women from STEM fields, so no single magic bullet will solve the problem. The mismatch between masculine STEM stereotypes and feminine gender role expectations creates barriers for girls' and women's participation in STEM at every life stage.

However, most of the women with whom Ambrose et al (1997) spoke during their research had a mix of positive and negative experiences, and found the positive experiences compelling enough to overcome the negative ones. Somehow, they were encouraged to envision themselves as scientists or engineers, and it is this vision this paper intends to present.

Finally, Rosser (2018) states that a scarcity of women may result in underperformance due to a lack of gender diversity—the First Round Capital Startup Report, for example, documented that teams with women perform better than their all-male counterparts for the venture capital firms by over 60% (Evans, 2016).

3. Science in social media

McLuhan considered the media to be apolitical, not ideological, but objects of social interaction: an own extension of the human body (Baptista and Barbosa, 2011). McLuhan, without a doubt, was his time ahead. The intellectual developed the Laws of the Media, or tetrads, to describe how the influence of a new technology in the society would be. In short, we can say that when a new technology is created, we have no dimension of how it will change society.

According to Beretta and Pires (2016), in order to create a forecast pattern, McLuhan proposed four guiding concepts. They are: Enhance (what does this technology improve?), Obsolescence (what does this technology make obsolete?), Recovery (what does this technology recover?) and Revert (how will this tool revert when taken to the limit?).

McLuhan used the terms "hot, cold or mixed" to propose that the media are classified according to the level of user involvement. A hot medium is one that requires little user participation, for example radio and oral communication. A cold environment requires greater user participation, such as sight and writing. Mixed media encompasses the two previous concepts. For example, we have television and cinema (Baptista and Barbosa, 2011).

In addition to the pessimistic considerations about the mass media contributing to the creation of a "passive audience", where users would be mere recipients of information, McLuhan predicted the human side of the media by providing a new configuration of the term for "active audience". Users would then be able to make their own reviews and assessments based on the information received. McLuhan did not experience the internet age, yet he left a legacy of knowledge that transcended time. We can understand the internet with characteristics of different media. According to Braga (2012):

> The emergence of VoIP protocols and so-called web 3.0 demonstrated that there are many "internets" within the internet. E-mail, YouTube, Skype, Facebook, instant messenger, online multiplayer games and mailing lists, for example, are completely different structures that promote different social practices and that need to be properly studied, making it difficult to consider "the internet". As something monolithic, only as a new means of communication (Braga, 2012, p.53).

The internet is still not accessible to everyone for a variety of reasons. However, among the approximately 7 billion human beings, approximately 4.5 billion have already used the internet, and about 3.8 billion are users of social networks (Brazilians account for 66% of the group that accesses social networks). The differences between networks and social media, basically involves the objective to be achieved. While social networks aim to create a relationship between people, social media proposes the exchange of content between people.

The concept of social network and social media can converge, and sometimes get confused, as in the case of YouTube, Facebook, Instagram and Twitter, which promote interpersonal relationships through likes and comments, in addition to the exchange of content through photos. and videos. Social media is increasingly being used to bring scientific content to a considerable number of people. As an example, we have Nasa (National Aeronautics and Space Administration) that disseminates its content on a range of social media.

Torres (2016) explains that it is necessary not only to do science, but to tell everyone that you are doing science. Scientific dissemination actions on social media are important to arouse interest in society. The care that must be taken is to understand the language used and adapt the scientific content to that language. It is a mistake to think that just inserting information along the lines of a scientific article is ready. This type of attitude can alienate the audience and have a completely different result than desired.

3.1 YouTube social media

YouTube is a social media created by Chad Hurley, Steve Chen and Jawed Karim, in February 2005, in order to be a video sharing platform. In November 2006, Google purchased YouTube, which became one of its subsidiaries. Currently, several services can be performed through the platform, which is now also considered a social network.

According to information from YouTube itself, its mission is to "give everyone a voice and reveal the world". Its values are based on:

> • Freedom of expression: "We believe that people should be able to express themselves freely, share opinions, promote open dialogue, and that creative freedom allows for the emergence of new voices, formats and possibilities".

> • Right to information: "We believe that everyone should have free and easy access to information and that the video has a great influence on education, the construction of understanding and the transmission of information about events in the world".

> • Right to opportunity: "We believe that everyone should have the opportunity to be discovered, set up a business and achieve success according to their own point of view and that ordinary people, not influencers, decide what is going on".

> • Freedom to belong: "We believe that everyone should be able to find supportive communities, eliminate obstacles, cross borders and meet around shared interests and passions".

The choice of this social media was based on the reach and popularity of the platform. About two billion users use YouTube, representing almost a third of the population connected to the internet. Users are between 18 and 34 years old, which corresponds to a young audience, with a greater propensity to interest in scientific dissemination. Another interesting factor is that the platform invests in content creators and video monetization, which is attractive to new users. In addition, YouTube is present in more than 100 countries and in up to 80 different languages.

In a recent survey, YouTube (2020) reached four human motivations for consuming its video content. They talked with more than 3,000 people, analyzed more than 8,000 videos and concluded that, of these, 39% have entertainment as their main interest; 30% seek knowledge; 22% seek connection with people / world and 9% have the desire for self-knowledge. A science channel that provides knowledgeable entertainment will reach a wide audience.

4. Methodology

Thus, the qualitative approach was carried out understanding the environment as a direct source of data. The study was done without intentional manipulation. The data are descriptive and portray the elements of the reality studied. The process is considered more important than the product. Thus, in the analysis of the collected data, there is no concern in proving previously established hypotheses, but these do not eliminate the existence of a theoretical framework that directs the collection, analysis and interpretation of the data (Prodanov, 2013, p. 70).

4.1 Research procedures

The research was organized in two stages: a) search for channels of women scientists on YouTube; b) Analysis of content available on the channels of the chosen women scientists.

In this way, a search was carried out in the "search" tool located on the YouTube homepage in order to find channels for women scientists / disseminators. To this end, keywords were used to guide the search, such as: female scientist, black scientists, physics channel, researchers.

The search for those words did not return a satisfactory result; there were several videos of women scientists, black women scientists, but not the channel code commanded by these women. Thus, it was necessary to expand the search to the whole of Google. From the results offered by Google, some selection criteria were established:

- Be woman;
- Minimum education: higher education;
- Have a YouTube channel that disseminates science respecting its area of expertise;
- Maintain regular activity on the channel.

In addition to the above criteria, the inclusion of black women was considered. The number of subscribers was not a concern. In this way, we selected 5 channels to be analyzed.

1. **DePretas** - *Gabi Oliveira*: With 620 thousand subscribers and 22,306,984 views, the DePretas channel is presented by Gabi Oliveira, graduated in Social Communication, Public Relations, by the State University of Rio de Janeiro (UERJ). Created on July 19, 2015, the channel addresses themes related to the empowerment

of black women, who go through the aesthetic and social bias. The regularity of posting is new video every week, as described by the presentation photo.

2. **Physics and the like** - *Gabriela Bailas*: The 173 thousand subscribers and 8,053,076 channel is presented by Gabriela Bailas. Graduated in Physics from the Federal University of Rio Grande (FURG) with a sandwich period at the University of Coimbra; Master in Physics from the University of Pelotas (UFPEL), PhD in Physics from the Laboratoire de Physique Corpusculaire (LPC - France) and PhD in High Energy Accelerator Research Organization. The channel was created on June 26, 2016 and addresses topics related to Physics and its various related areas. The insertion of videos in the channel is frequent, reaching five videos depending on the week.

3. **Fiction & Co**- *Wlange Keindé.* - With 112 thousand subscribers and 5,700,951 views, the channel is presented by Wlange Keindé (Figure 3) and addresses literature and Portuguese language. The insertion of videos is regular, about 1 video per week. Wlange has a degree in Social Sciences from the Universidade Federal Fluminense (UFF), a graduate student in Screenplay at the Escola de Cinema Darcy Ribeiro (ECDR) and a Master's degree in Letters from the State University of Rio de Janeiro (UERJ).

4. **Peixe Babel** - *Camila Silva and Virgínia Mota* - The channel (Figure 4) was created on June 16, 2014 by Camila Silva and Virgínia Mota. It has 78 thousand subscribers, 2,202,399 views and addresses topics related to computational science. Camila Silva has a degree in Information Systems from the State University of Bahia (UNEB), a master's and doctoral student in Computer Science from the Federal University of Minas Gerais (UFMG). Virgínia Mota has a degree in Computer Science from the Federal University of Juiz de Fora (UFJF), a Master in Computational Modeling from UFJF and a PhD in Computer Science from the Federal University of Minas Gerais (UFMG).

5. **Archeology around the world -** *Márcia Jamille* - With 38.7 thousand subscribers and 1,110,649 views, the channel is presented by Márcia Jamille. With a regularity of 1 video per week, the channel addresses archeology themes with everyday applications. Márcia Jamille has a bachelor's and master's degree in Archeology from the Federal University of Sergipe (UFS).

4.2 Video selection

A classificatory search (more or less popular) was carried out and two videos were selected, from each channel, for the research. The first video is the one with the highest engagement, most likes and views. The second video is the one that contains less engagement, less likes and views, as shown in table 1.

Table 1. List of selected YouTube channels and videos.

channel	videos	duration	views	like	dislike	date
DEPRETAS	Cabelo 4c igual bombril e resposabilidade | papo depretas	6'43''	1.650.442	129.000	2.200	Dec23,2018
DEPRETAS	Resenha Creme de Pentear e Gel Salon Line #todecacho | DePretas	8'6''	18.543	805	16	Dec9,2015
Física e Afins	Física reagindo ao coach quântico e a psicóloga • física quântica	31'13''	686.736	57.000	2.000	July31,2019
Física e Afins	Morando na França: lixo e lixeiras, um pouco de Clermont - Ferrand!!	8'2''	5.077	178	15	July21,2016
Ficçomos	Uso de vírgula, ponto e vírgula e dois pontos	12'50''	799.499	32.000	1100	July12,2015
Ficçomos	Personagens | nanowrimo #3	6'	2.583	340	1	Nov20,2016
Peixe Babel	Duelo de Robôs Gigantes EUA vs Japão | Peixe Babel 37	4'5''	407.197	6.000	829	July6,2015

Peixe Babel	Chopp com Primata Falante | Chopp comCiência BH	3:30':20"	2.656	281	4	Aug30,2018
Arqueologia pelo mundo	Dezenas de Sarcófagos Encontrados!	8'3"	42.206	2.400	38	Nov14,2019
Arqueologia pelo mundo	Encontro com leitores de São Paulo | #ArqueologiaEgípcia	27'53"	337	25	2	Oct15,2015

Source: Author's data collection.

An analysis of the videos of each channel was carried out in order to understand what leads to a video to obtain greater engagement to the detriment of another and in this way, to seek a relationship to make them attractive to the audience that one wants to reach. In the next chapter, the results obtained from this analysis will be presented.

5. Results and Discussion

The description of the video provided by each YouTuber will be presented, for each video and a brief perception of how the video developed during the duration.

1. **DEPRETAS CHANNEL, Video 1**: 4C hair like Bombril and Responsibility. **Video description:** Hair transition is not easy, especially for curly girls, as they are the most stigmatized. In the video by Daiene Nascimento, curly YouTuber who decided to make a video ridiculing curly hair, especially 4C hair. Starting with an excerpt from a YouTuber video Daiene Nascimento, Gabi Oliveira invites her followers to reflect on social responsibility and representativeness. Gabi says that Daiene's video exposes what she has been denouncing for a long time in conversations on her channel and even with brands that sponsor her.

2. **CHANNEL PHYSICS AND THE LIKE, Video 1:** Physics Reacting Quantum Coach and Psychologist • Quantum Physics. **Video description:** No description. Gabriela Bailas starts the video saying that it is the first "react" video on the channel. It is a video where she "reacts" to the content of a video released by the Sputnik channel. The Sputnik video in question is about a conversation between a quantum coach and a psychologist. Gabriela says that she watched part of the video and didn't watch it in detail, but it was enough to say that she thought the psychologist was wonderful. The same was not said about the coach.

3. **FICÇOMOS CANAL, Video 1:** use of comuntan, point and comomy and two points. **Video description:** Score! Learn how to correctly use the comma (,) the semicolon (;) and the colon (:) Do not make mistakes in the use of the comma, the use of the semicolon or the use of the colon anymore! Master the scoring rules! Wlange Keindé starts the video explaining that she will talk about the use of comma, semicolon and colon. The video goes straight to the point starting with the use of the comma, because according to Wlange it is the most difficult part and the other topics are more "easy".

4. **BABEL PEIXE CHANNEL, Video 1:** Duel of Giant Robots (USA vs Japan). **Video description:** If you ever dreamed of a battle between metal giants, know that this day is coming! MegaBots has just challenged Kuratas to combat. They are the only two Meka in the world, and if all goes well, they will face each other very soon. The video is presented by Mila Laranjeira. Straight to the point, Mila warns that she has news that will shake nerdy hearts, especially those who love fights between giant robots. A section of robot fighting is shown on the screen and Mila informs that in 2014 a Japanese company created the first real-life meka; a robot almost 4 meters high and 5 tons that received the name of kuratas!

5. **ARCHEOLOGY CHANNEL AROUND THE WORLD, Video 1:** Dozens of Sarcophagus Found! **Video description:** The incredible discovery of 30 sarcophagi together in Egypt, a few kilometers from the temple of Pharaoh Hatshepsut, caught the attention of the world. All are in a great state of conservation, keeping their colors and inscriptions and the most interesting: they are closed, which makes it possible for everyone to still have mummies. Márcia Jamille starts the video by introducing herself and informs that she will talk about an archaeological discovery that caused the biggest uproar in October 2019. The subject in question is the discovery of 30 sarcophagi in Egypt, all in the same place, in a village called Asasif , near Luxor.

5.1 Results Analysis

A first question that may arise is whether the YouTubers presented are in fact scientists or researchers in the field they represent. In addition to their academic backgrounds, they present scientific criteria in their work: For the discourse to be recognized as scientific, it needs to be logical, systematic, coherent, above all, well-argued. This distances him from other knowledge, such as common sense, wisdom, ideology (Prodanov, 2013, p. 17).

These women scientists and YouTubers provoke a paradigm break that the scientist is only a being that inhabits the laboratories of universities and addresses issues that are misunderstood by the majority of the population. In their videos, they bring the public closer to science and make it possible to access knowledge that was previously restricted.

DePretas' video 1 reached a mark of 5,919 comments, all very positive. Comments highlight the importance of Gabi Oliveira for the representation of black women, corroborate the discourse presented about the imposition of an aesthetic pattern around curly and curly hair, as shown in Figure 1. The people who commented agree with Gabi's opinion about the importance of following people who encourage the discussion about blackness, in addition to an aesthetic discourse. Some comments from people sharing their experiences were observed, which is positive and desired in scientific procedures. Comments keep coming to the video and show how this kind of discussion is needed.
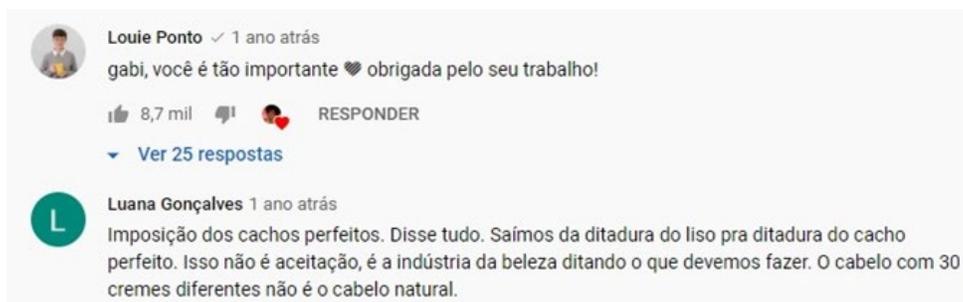

Figure 1. Video comments 1 - DePretas channel.

A very interesting comment was made by a follower who explains that the psychologist also comes from a scientific area (Figure 2). This kind of comment provokes the debate about what science is. It demystifies that a scientist is only someone trained in physics or astronomy, for example.
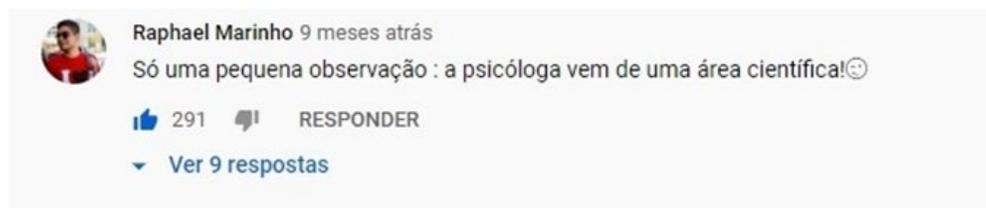

Figure 2. Video comment 1 - Physics and the like channel.

If there is something capable of uniting everyone, it is language. And Wlange Keindé does this with mastery. In video 1, she moved her channel with over a thousand comments, among which, they praised her simplicity in teaching (Figure 3). If we want to encourage girls and women to pursue a scientific career, we need to become accessible. Wlange is a young black woman, researcher and winner of several awards in her profession. Teaching about punctuation, in addition to grammatical rules, is to open the door to different types of knowledge.
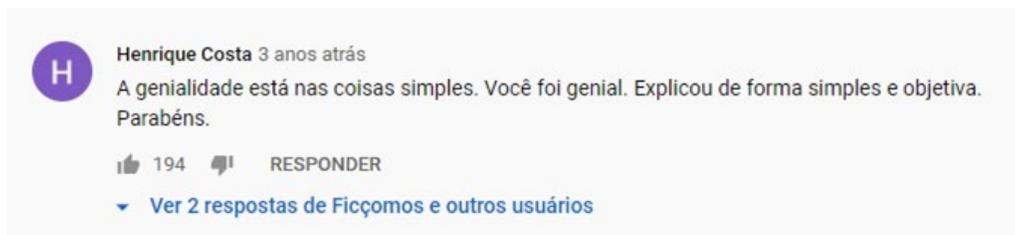

Figure 3. video comment 1 - Ficçomos channel.

The second Ficçomos video, although more recent than the previous one, achieved a lower number of views and interactions. Perhaps because it is a specific topic for anyone who is a writer in the style addressed by the video. Computing and robotics issues usually arouse great interest on the internet. The video 1 of the Peixe Babel channel transmits knowledge and fun in a short time, which is characteristic of successful videos on YouTube.
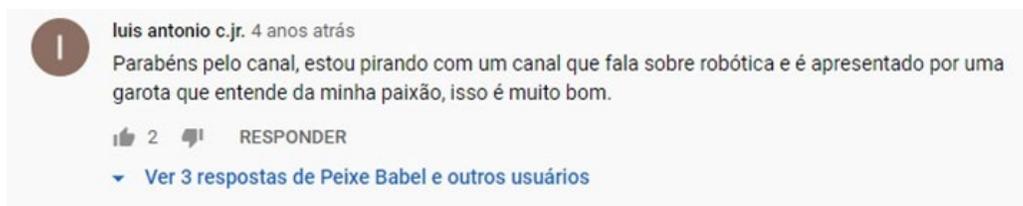
Figure 4. video comment 1 - Peixe Babel channel.

Peixe Babel's second video, despite the excellent content on Physics, did not show much engagement. One of the causes may have been the lack of editing, since the video has more than 3 hours. Another reason may have been the delay to start the video theme (after 50 minutes of random images).

Video 1 of the Archeology around the World channel demonstrates how women can influence other women from their narratives. The comments, in general, praised Márcia Jamille's ability to transmit knowledge on a topic such as archeology. However, one comment (Figure 5) in particular draws attention; she is a regular follower who asks to be a supporter of the channel. This type of comment is important to encourage the production of scientific content on social media, it is the recognition of a job well done.
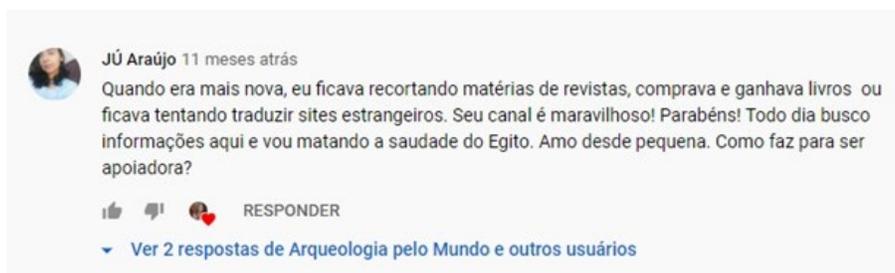

Figure 5. Video comment 1 - Peixe Babel channel.

Finally, video 2 from the Archeology around the World channel did not achieve the same reach as video 1. The subject addressed is a meeting of a reading group on archeology where Márcia tells her trajectory. The content itself is extremely important to encourage the participation of other women in archeology, but the way it was made available was not attractive to the public.

6. Conclusion

Overcoming female invisibility in scientific circles means overcoming social invisibility, it means not having to work twice as hard as a man to show his potential. It is a fact that women have been occupying some places in the world. However, it is still an uneven battle. It is true that we do not want to fight, we do not want to confront men. This agenda is not of female interest. It is of feminine interest that the woman is emancipated and thus be able to be the protagonist of her own life.

The analyzed channels and videos offered diversified content and are presented by qualified women. These women break paradigms about the scientist's profile and bring information to a lay audience that was previously restricted to academic circles. Thinking about science on social media is thinking about accessible languages. Thinking about science more accessible is also thinking about representativeness.

Videos that use scientific terms in the title tend to draw more audience attention. In addition, it is important that the time is not too long so that the user does not lose interest. Videos of random content, such as advertising or product reviews, do not provide engagement; a discussion is needed that engages historical and social issues.

Most video comments were made by men; with the exception of the DePretas channel where most of the audience is female. Men are watching content produced by women and the question is: where are women to strengthen these channels? They are possibly present, as well as men, but they may not feel validated to express an opinion. After all, silence is part of women's history. Or they may be too exhausted with housework.

From these considerations we can answer the question asked in the introduction: yes, social media can collaborate with the participation of women in science. As suggestions for future work, it is recommended to (i) analyze other

videos of the channels reported in this study; (ii) Search for other social media, such as Facebook, Instagram and Twitter, which can encourage the participation of women in science; (iii) analyze the existence of new myths that can keep women away from scientific careers.

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