

The Use of Social Networking Sites for Scholarly Communication by Emergent Social Scientists

An Affordances Approach

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Objectives — This study aims to explore how early career social sciences researchers and PhD social science students use social networking sites for science communication in Brazil. The central research question is what are the motives and rationale of the researchers for using social networking sites for academic communication. Two sub-questions arise from here: How do these reasons relate to scientific practices and the academic system of Brazil? And which are the main affordances perceived by researchers?

Methods — This study is empirically oriented, building upon case studies in Brazil. It makes use of a review of affordances of social media platforms, applying the review to the study of social media as a theoretical foundation. The methodological approach is qualitative, using both interviews and netnography as research methods.

Results — The primary motivations for using different Social Networking Sites (SNSs) are all related to connectivity: communication with peers—and, to a lesser degree, to the public and the research participants, updating themselves about their research interests, dissemination of research, checking availability of papers, self-branding, and participation in interest groups. These motivations translate into cross-posting practices and integrated communication strategies—combining online and offline elements—on the different platforms. The main affordances perceived by researchers in this study were related to social affordances or, in other words, social capital processes: availability, scalability, visibility, and multimediality.

Conclusions — SNSs have not yet replaced traditional communication channels in the case of early career social science researchers because the academic evaluation systems do yet not include them. The use of SNSs changes according to the affordances early career social sciences researchers see (or fail to see) for each platform. This study identified observable differences according to a researcher's field of expertise and level of comfort with particular platforms.

Keywords — Social Networking Sites (SNSs); Brazil; Early career social science researchers; Social sciences PhD students; Science communication; Scholarly communication; Affordances

Die Nutzung von sozialen Netzwerken für die wissenschaftliche Kommunikation von aufstrebenden Sozialwissenschaftlern: Ein Affordances-Ansatz

Zielsetzung — Diese Studie zielt darauf ab zu untersuchen, wie Sozialwissenschaftler am Beginn ihrer Laufbahn sowie Doktoranden dieses Faches soziale Netzwerke für die Wissenschaftskommunikation in Brasilien nutzen. Die zentrale Forschungsfrage ist jene nach den Motiven und Gründen der Forscher für diese Nutzung, woraus sich zwei Subfragen ergeben: In welcher Beziehung stehen diese Gründe zur wissenschaftlichen Praxis und zum akademischen System Brasiliens? Und: Was sind die wichtigsten von Forschern wahrgenommenen Angebotscharakteristika (Affordanzen)?

Forschungsmethoden — Die Studie ist empirisch orientiert und baut auf Fallstudien in Brasilien auf. Sie macht von einem Review der Affordanzen von Social-Media-Plattformen Gebrauch und wendet

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dies als theoretische Grundlage an. Der methodische Ansatz ist qualitativ und verwendet sowohl Interviews als auch Netnographie als Forschungsmethoden.

Ergebnisse — Die Hauptmotive für die Verwendung verschiedener Social Networking Sites (SNSs) hängen alle mit der Konnektivität zusammen: Kommunikation mit Peers und – in geringerem Maße – mit der Öffentlichkeit sowie den Probanden, Auf-dem-Laufenden-Bleiben hinsichtlich der eigenen Forschungsinteressen, Verbreitung von Forschungsergebnissen, Überprüfung der Verfügbarkeit von Veröffentlichungen, Selbstvermarktung sowie Mitwirkung in Interessensgruppen. Die in dieser Studie von den Forschern wahrgenommenen hauptsächlichen Angebotscharakteristika bezogen sich auf soziale Affordanzen oder, mit anderen Worten, auf Prozesse des sozialen Kapitals: Verfügbarkeit, Skalierbarkeit, Sichtbarkeit und Multimedialität.

Schlussfolgerungen — SNSs haben die traditionellen Kommunikationskanäle für Sozialwissenschaftler in deren früher Karriere noch nicht ersetzt, da sie in den akademischen Bewertungssystemen noch nicht enthalten sind. Die Verwendung von SNSs ändert sich je nach den Affordanzen, die Sozialwissenschaftler in ihrer frühen Karriere für jede Plattform sehen (oder nicht sehen). Die vorliegende Studie konnte beobachtbare Unterschiede aufgrund der fachlichen Spezialisierung sowie des vom Forscher empfundenen Komforts einer bestimmten Plattform identifizieren.

Schlagwörter — Soziale Netzwerke; Brasilien; Sozialwissenschaftliche Nachwuchsforscher; Sozialwissenschaftliche Doktoranden; Wissenschaftskommunikation; Wissenschaftliche Kommunikation; Angebotscharakter; Affordanz

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1 Introduction

Social Networking Sites (SNSs) offer tools for communication, collaboration, and diffusion of research outputs. Many scholars take advantage of these sites for networking and communicating their findings to others. Academics 'are instructed to build their online persona and engage in personal branding' (Duffy and Pooley 2017, p. 3). However, this promotional and networking labour also demands time and energy. Besides, the fact that the use of social media is blurring the limits of what constitutes the public and the private life of the individual makes this relationship even more complicated.

Social Networking Sites and other types of connective media create a large ecosystem that interacts with the traditional media ecosystem (Van Dijck 2013). Social media has made academia more horizontal because people have the ability to contact others more quickly, in an informal manner. Feedback and answers are shared instantly. Also, achieving collaboration is easy due to the speed of contact.

Academia has entered into a series of changes on a global scale. Veletsianos (2016), for example,

argues that due to technological advancement, a parallel system to educational institutions has appeared online. Science communication, and especially communicating science to the general public (as an extension of scientific activity), is very important for researchers in public universities in order to make the case that their work is still relevant to society and in order to continue to have access to public funding. This latter point is increasingly relevant for scholars working in the humanities and social sciences fields.

Brazil has more research outputs and more investment in Research and Development (R&D) than in the rest of Latin America combined. Recent cuts in funding for education and research in Brazil and many others in the region make the necessity of effective science communication even timelier than ever. All the more, this subject field has been traditionally understudied. There is a critical gap in the literature about science communication in the Global South (Guenther and Joubert 2017; Gastrow 2015) and therefore this research hopes to help

filling this research gap by providing an insight into science communication behaviours in Brazil.

The tertiary education system in Brazil comprises of 257 public and 2,141 private institutions. Research production in universities is mandatory, but not in university centers and colleges (Dias Sobrinho and Brito 2008). The incentives from the national authorities assert academics should have a PhD degree and be actively engaged in research. National funds usually support science in Brazil; nevertheless, researchers with international contacts can get more resources from abroad (Schwartzman and Balbachevsky 2014). The Lattes Platform¹ is the largest online CV database created by the National Council for Science and Technology (CNPq); to have an updated CV on this platform is a requirement for applying for grants and fellowships from the CNPq (Massarani and Peters 2016, p. 1166).

Evaluation systems at Brazilian universities and research centres consider most of the traditional scholarly communication platforms. The system gives different emphasis to various roles such as author, editor, member of an editorial board, and participation in conferences and workshops. The evaluation system does not include social media usage, therefore—just as Veletsianos (2016) describes—the incentive for researchers to communicate their work through these channels is rather small. Social media metrics are not in any way translated into the formal evaluation system of institutions, so any academic outreach and promotion generated by scholars using those platforms is not yet included in these systems.

1.1 Affordances Theory and Social Networking Sites

There is a dialogic relationship between social media and people: people choose SNSs because of specific functionalities, but at the same time, these very same features frame and shape peoples' activities (Sharma et al. 2016, p. 73). Exactly this relationship between users and the materiality of technology—such as technological functions and algorithms—relates to the creation and actualization of social media affordances (ibid., p. 74).

Social media introduce new affordances mainly regarding the amplification and spreading of information. For Boyd (2010, p. 46), there are four main affordances emerging from social media: persistence, replicability, scalability, and searchability. The persistence affordance allows expressions and communications to remain recorded and accessible through the Internet. Through the replicability affordance, content can be duplicated. With the scalability affordance, content can be visible to scores of people, and through the searchability affordance, content can be searched online.

Communicative practices change through the use of high-level affordances (Bucher and Helmond 2018). Communicative affordances are defined as 'an interaction between subjective perceptions of utility and objective qualities of the technology that alter communicative practices' (Schrock 2015, p. 1238). Within communicative affordances, three main affordances are distinguished: availability, locatability, and multimodality. The availability affordance 'can be thought of as a combination of multiplexity (where different types of media coexist simultaneously), direct contact with individuals, and increased frequency of communications through various locations' (ibid., p. 1237). The locatability affordance is related to the availability of the sites, mainly defined by geographical coordinates, but also 'they now acquire dynamic meaning as a consequence of the constantly changing location-based information that is attached to them' (ibid., p. 1237). The multimodality affordance refers to the ability to use different types of media such as integration with audio or pictures, i.e. visual communication, in the communicative practices (ibid., p. 1238).

The term 'social affordances' refers to the 'possibilities that technological changes afford for social relations and social structure' (Bucher and Helmond 2018, p. 9). More specifically, this type of affordances looks at 'specific features of the network to understand social capital processes' (ibid., p. 13). The concept of *social capital* was introduced by Bourdieu as the real or potential resources coming from the fact of being part of a network (Ellison and Vitak 2015, p. 8); these resources are elicited through social interaction and exchange or resource petitions within this network. Resources available to people largely depend on their position within the social

1 <http://www.lattes.cnpq.br/>; see also section 3.6 below;

network and how they communicate with this network. In this context, social capital derives from interactions with the user's network. Thus, the constant use of social networking sites is associated with perceived benefits and accumulation of social capital resources (ibid., p.10).

Furthermore, SNSs allow users to connect with latent ties; then, friends of friends become available and visible due to their positions in the platforms; by doing so, latent ties convert into weak ties instead. Moreover, social credentials become visible through the affordances of association and visibility. Social credentials are resources coming from social ties and their acceptance in the network relationships (ibid., p. 213).

The visibility affordance refers to the 'amount of effort people must expend to locate information' (Treem and Leonardi 2013, p. 11) or types of information or actions that are made visible (ibid., p. 12). Therefore, the visibility of different kinds of work is afforded by different social media platforms.

There are some technology affordances that can also apply to SNSs because these platforms can en-

able new types of knowledge creation behaviour (Wagner et al. 2014). The main affordances related to knowledge creation encountered by these authors (ibid, p. 40–41) are linked to the socialization process. This process is achieved through the affordances of association and reviewability. Furthermore, an externalization process is executed through the affordances of authoring and editability while 'the combination is supported by the affordances of editability and recombability; and internalization is supported by the affordances of reviewability and experimentation' (ibid.).

1.2 Research Question

This study investigated the motives and reasons why researchers use SNSs for science communication (primary research question). Two sub-questions arose from this research question: How do these reasons relate to individual research practices and to the academic system of Brazil? And: what are the main affordances perceived by researchers?

2 Methodology

The methodological approach was qualitative. Each case was a unit on which variables were measured. The instruments used in this study were structured interviews and netnography. On the one hand, interviews provided detailed data on what people think about science communication and how they perceive social media platforms and why — or why not — they use these platforms for such end. These instruments also provided a broad understanding about the main affordances researchers see in each platform and how they use them. The questions were specific about dissemination of science and their use of social media for this purpose.

On the other hand, netnography data provided information that may have been overlooked by the interviews respondents as in a conscious response. This type of data provided an in-depth understanding of community interactions between different platform users. This instrument also provided a low bias — since data was not elicited the information is available naturally in the different platforms.

The selection of researchers was made using the snowball sampling technique. This method of

sampling is ideal to use because 'there is no available sampling frame listing all the elements for the population of interest' (Scott 2015). Since the author already had some contacts living, studying, and working in Brazil, these contacts were asked for other reference(s), especially for early career scientists who were active users of different social media platforms.

The first part of the study was carried out by conducting structured interviews of several early-career social sciences researchers. This series of synchronous online interviews was conducted via Skype videoconferencing and calls, and, in one case, using the call feature on the Slack platform. Luckily enough, almost none of the videoconferences and calls provided any obstacles such as dropped calls or inaudible segments- Also, this particular research study was not too sensitive, so that participants might have been reluctant to share intimate information through Skype (cf. Seitz 2016).

The interviewees were either early career researchers or PhD students from different fields within the social sciences including Information Sci-

ences, Education, Anthropology, and Law. The interviews were carried out in English, Portuguese, or Spanish depending on the interviewee's preference. A complete description of the interviewed early career social science researchers and PhD students is available in [table 1](#).

The second part of the study was carried out using netnography, which was used here as an additional tool rather than an exclusive research method (Davies 2008). Netnography (Kozinets 2017) aims to constitute a research method using Internet, social media, and community interactions as main information sources, and includes profound researcher commitment. Netnography data contains interactions, participation, heterogeneity, and most importantly, different participants (Kozinets 2015). In this particular case, interpretations were built upon non-elicited netnography data rather than elicited data (Kozinets et al. 2014). The netnography part focused on participation in the active social media accounts of the selected social science researchers for the time period January to June 2017. Social media account information for each participant is available in [table 2](#).

Data analysis was made using Dedoose² which is a web application for qualitative or mixed methods

3 Analysis and discussion

Different SNSs provide a complex ecosystem where different agents interact, negotiate, and provide connectivity from within each other. Affordances theory enabled an understanding of how researchers use the different platforms and of the many motivations behind their use of social networking sites. [Figure 3](#) shows a synthesized picture of the main affordances perceived and mentioned by early career social science researchers interviewed in this study: social affordances, availability, scalability, visibility, multi-mediality.

analysis. The coding process started by reading the interviews and the netnography and then assigning codes to each extract following an open coding process, which eventually led to the creation of conceptual categories. In other words, the results of the analysis of text content were codes. The initial codes emerged from the themes seen in the extracts.

After completing this first process conceptual categories built upon from these initial codes were created. The broader categories are seen in [figure 1](#):

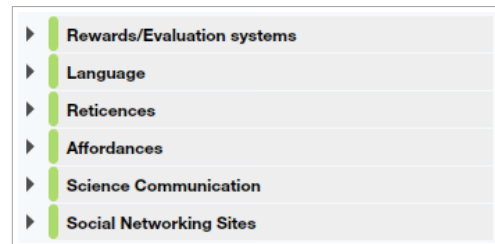


Figure 1: Categories for data analysis in Dedoose

The cloud of codes and categories used in this research is available in [figure 2](#). In this figure, the codes that repeat the most in the data are larger than those which do not have a lot of repetitions.

3.1 Contacts for Collaboration: Social Affordances

Social affordances refer to the different characteristics of social networking sites that allow social capital flows (Bucher and Helmond 2018). The formation and accumulation of social capital are not only related to social affordances but also to the affordances of availability, scalability, visibility, and multi-mediality throughout the platforms.

Social capital resources depend largely on people's position within a social network, since social capital resources are evoked through interactions within the system (Ellison and Vitak 2015). These social capital resources translate from the real world to the online screen. In social media platforms such as Academia.edu or ResearchGate and

² <https://www.dedoose.com/>

Person	University	Academic status	Field	Age range	Gender
J	Universidade de Brasília, UnB	PhD student	Information Sciences	40-45	M
R	Universidade Federal do Ceará	Associate researcher	Education	35-40	F
L	Instituto Federal de Rondônia (IFRO) Campus Ji-Paraná	Associate professor	Anthropology	40-45	F
V	Universidade Federal do Rio de Janeiro	PhD student	Information Sciences	30-35	F
D	Universidade de Brasília, UnB	PhD student	Law	20-25	F
M	Universidade de Brasília, UnB	PhD student	Information Sciences	25-30	F
C	Universidade de Brasília, UnB	PhD student	Anthropology	25-30	F

Table 1: Interviewee information

Person	Facebook	Twitter	ResearchGate	Academia.edu	Mendeley	YouTube	WhatsApp
J	x	-	x	x	-	x	-
R	x	x	-	-	x	-	-
L	x	-	-	-	-	-	x
V	x	x	x	x	-	-	-
D	x	-	x	x	-	-	-
M	x	-	x	x	-	-	-
C	-	-	x	x	-	-	-

Table 2: Active social media accounts for interviewees



Figure 2: Cloud of codes and categories for data analysis in Dedoose

Twitter, early career researchers follow more people than they have people following them. The excep-



Figure 3: Different relations between social affordances

tional cases are when a researcher is more established; i.e., has more offline social capital already such as a significant presence in papers, participation in conferences, or significant work experience before embarking on an academic career.

Social networking sites offer a large amount of detailed personal data which provides information about research interests and preferences, history, social circles. These online identities allow other users to find common ground in these visible profiles (ibid.). Therefore, using social networking sites helps researchers to establish new contacts and especially to identify whom to contact later or who is working on a particular subject within a field and in which country. This feature is especially useful in study niches where very few people conduct research in a specific area; however, face-to-face meetings — especially in conferences — are necessary for further collaboration. One PhD student put it this way:

Social media platforms help to know other people in your field. The problem with law is that when you do general law it's easy, but when you do specific law like aviation law, there are few people inside and to get inside this little circle is really hard, so when you are invited to a congress you just go and meet new people and this social media helps you to see who they are and who are they working with and see other people who are doing the same things as you.

(D., personal communication, March 5, 2017).

3.2 Invisible colleges & International collaboration

Consequently, social networking sites may also serve as a way of making visible and tangible the different and previously invisible colleges in academia. The term 'invisible colleges' refers to a group of scholars communicating and collaborating in a particular subject, who may or may not share the same institutional or the same physical place (Zucala 2006). Academic SNSs can help early career researchers identify who the members of these invisible colleges are, since these sites provide a visible infrastructure. Online communication works much better when researchers already have had some face-to-face contact and then use web tools to cooperate (Wagner 2008). This phenomenon also occurs in the case of Internet discussion groups that can help to develop weak ties but unfortunately do not transform them into actual collaboration (Zucala 2006). In other words, researchers think science still needs personal circles. This view means that face-to-face meetings make it much faster to collaborate, whereas initial new contacts made using social media platforms should later be 'legitimized' by real life meetings with these prospective new peers. There are cases where these initial contacts made through social networking sites — i.e. weak ties —

have led to collaboration and to writing an article. But in other cases, to transform these new social media contacts into active and productive partnership has been hard. More time and getting to know a person are required for this specific aim.

An effective international collaboration³ is very hard to achieve for early career social scientists. Even though the increase of international collaboration is a perceived benefit (Work et al. 2015), it does not happen for early career researchers by solely using online platforms. This lack of effective international collaboration could be due to the fact that people prefer to interact and work with people that they already know in real life (Boyd 2010). Early career researchers do not yet have so many established contacts in an international environment and in most cases, this involves constant online and offline contact and communication.

The constant use of different social networking sites and especially cross posting practices and various interactions within the user's network generates an accumulation of social capital resources (Ellison and Vitak 2015). Besides the formation or reshaping of a professional international identity as being active on social networking sites makes early career researchers feel part of a specialized international community. Twitter can help researchers to feel they are part of a global community, since connections across so many countries can quickly appear (Budge et al. 2016). For instance, one researcher argued:

I feel like an international researcher, I feel inside an international community that investigates what I investigate and has the same interests as I do. Without leaving Brazil, we know things that happen in other countries, I do not refer to countries in the center because it is very easy to know what happens in the US, but it is not so easy to know what happens in Argentina or in Africa and though my available networks that is possible. Of course, you have to look for something; what comes from the United States and the western countries is always easier but if you look, you can find things from Africa and from Latin America...it makes me feel a citizen of

the world to be on the social networks (V., personal communication, May 24, 2017).

Overall, interviewed early career researchers argue that their social capital has increased with social media usage. It is mainly an integrated communication strategy displayed on multiple platforms: publications output, participation in conferences and social media outreach, all of these online and offline elements expand the circle and, therefore, the possibilities for further collaboration. Donelan (2016) argues that researchers who engage in an integrated online communication strategy across different platforms eventually have more successful results due to their different reasons for using them. However, this study pointed out that offline elements are necessary for this integrated communication strategy. Professional identity and academic connections (Budge et al. 2016) are not developed only using a single social media platform such as Twitter, but rather as part of an integrated communication strategy with different platforms and types of media (both traditional and digital). Therefore, social media serves as a booster or amplifier of actual research outputs, because researchers using SMSs enter a negotiation process throughout the different networks in search of the various ways of acquiring social capital.

3.3 Availability

The availability affordance as defined by Schrock (2015) is a combination of different media coexisting at the same time with direct contact with people and an expanded frequency of communications through various locations. The availability affordance is then present in access to information through the different platforms, especially when people ask for materials and have access to papers on this platform. This is especially the case when it comes to grey materials or expensive articles, since those have been traditionally difficult to locate and access in Brazil. For some researchers, academic social networking sites are not the first place to look at for collaboration, but rather are places to ask for references or for papers which the researchers don't have direct access to due to a variety of reasons.

³ i.e., to write an article as a group or send a conference paper as a team

The main perceived benefit of academic social media is about having more access to information. Instead of using traditional journals where payment is required, researchers have access to articles through the medium of academic social media platforms easily. The social media also can provide access to grey literature, such as unpublished papers and preprints. Hence, academic social media have the potential for enhancing the research process. Nonetheless, this type of affordance is competing with institutional repositories (Björk 2016) and, most likely, researchers are unaware of copyright issues when uploading content to these platforms. Another actor related to this affordance is the academic library. The academic social media sites end up acting as a substitute for academic libraries. As these institutions themselves often do not have enough subscriptions (due to a lack of funding), researchers find it necessary to find articles somewhere else — on sites such as Academia.edu, ResearchGate, and Sci-Hub.

3.4 Scalability

The affordance of scalability is defined by Boyd (2010) as the ability to scale the content so it can be seen by large numbers of people. Scalability in social media is a perceived benefit. It is mainly identified in a tangible way, especially with metrics from academic social networking sites or social media in general.

Social media metrics are attractive to early career researchers in terms of getting access to specific information regarding which paper is the most accessed or downloaded. It is more of personal interest to know if the output that the researcher is sharing through these academic social media platforms is useful to other people or if it is rather redundant work. As one researcher argued:

These social network indicators of the views or similar, I don't use those because they are not relevant to an academic activity, perhaps at personal level [they] may be a reference but do not have an immediate effect on my academic activity. Beyond having some reference on what contents are being consumed or which are being accessed beyond that there is no other reason (J.,

personal communication, February 17, 2017).

Metrics are important to see how much repercussion a certain event (related to the career of a researcher) has had in social media, and this may lead to social capital acquisition processes.

3.5 Visibility

The visibility affordance allows people to see other content about or from someone else; therefore, people — and their knowledge, both tacit and explicit — become visible when using the different platforms (Treem and Leonardi 2013, p. 11). I will first explain the visibility affordances in the context of researchers and then with regard to the content of other researchers (i.e., their profiles). The visibility of different types of work is afforded by the different social media platforms.

Most early career researchers use social networking sites to make visible their content available to the public or to other researchers by uploading or republishing their own work. Another point related to this affordance is when academic social networking sites such as Academia.edu and ResearchGate allow uploading of previously published but not copyrighted papers. Of the available documents, those which offer full-text access have more views and downloads than entries with just a reference (such as title or source).

In the case of academic social networking sites, the visibility affordance is valid though a dialectic process: researchers can access visible research though these platforms and they make their own research visible though these very same systems. As one researcher argued:

It is important to have a reference of them and thus to have an idea of which is the level of development of the subject on their part which definitively influences in the research...Knowing that is what they are researching or also about the level and limits that they are going. With this information, I can project my research so to have a guideline of what things I can innovate in the subject (J., personal communication, February 17, 2017).

The visibility affordance is present when researchers decide to use academic social media to see if the proposed research is redundant in the area. Academic platforms such as Academia.edu or ResearchGate are useful for knowing which other people are also working on the same subject. Therefore, these platforms are used by researchers to have a view of the research patterns of a particular subject and see what aspects of it can be innovated in future research, or rather to see if a research idea is redundant in an area and must be changed. Moreover, not only researchers have access to academic social networking sites but also people from outside academia access them.

The visibility affordance allows people using social networking sites to connect with other users who share the same research interests while making content about other researchers visible, namely convert latent ties into weak ties (Ellison and Vitak 2015). As stated in the social affordances section, social credentials are built upon resources coming from social ties and their network (ibid.), but in order to start this process, profiles must remain visible so that researchers can get specific information about research interests and preferences, histories, and social circles so that they can find common ground in order to start a conversation.

3.6 Multimediality

Connectivity travels across different platforms and in between social networking sites, traditional media, and scholarly communication platforms. This connectivity is enhanced by communicative practices, the so-called multimediality affordance. The multimediality affordance as defined by Schrock (2015) refers to the combination of different types of media such as audiovisual media in the communicative practices.

Researchers are prone to use different types of media and platforms, such as social networking sites and the traditional scholarly communication platforms, so all these platforms do interact with each other. Regional academic communication platforms such as Redalyc⁴ and Scielo⁵ are very well

known and highly valued within Brazil. In sum, the multimediality affordance situates between a combination of informal tools such as Facebook and Twitter and also academic tools such as the Brazilian scholarly communication platform, Lattes⁶. Researchers use national and regional scholarly communication platforms together with social media to disseminate their work, depending on which research output is being disseminated and to what target audience.

The Lattes system in Brazil is crucial as an academic network in the country since it is the largest online database for researchers. As such, it is quite common to find the CV Lattes link on a LinkedIn profile or public Facebook or Twitter profile of researchers together with a mini self-presentation paragraph. Other researchers provide many links to profiles on other platforms such as their Twitter profiles, Skype accounts, or their own blogs.

In some cases, researchers have experience in science divulgation using audiovisual media. Videos on platforms such as YouTube and webcasts are popular examples. Dissemination through the radio is also well received by people who like listening to it. In the studied cases, researchers pointed out the importance of using the appropriate language to get the message across different platforms.

3.7 Barriers to Social Networking Sites use

There are some barriers to social media use that cause researchers not to use social media for science communication or not to use social media at all. This study identified a variety of reasons: lack of confidence, lack of understanding on how social media works, lack of awareness of certain types of academic SNSs, linguistic and cultural barriers, and privacy concerns.

First, people who do not engage in SNSs often think their opinion is not good enough to put it out there and have some kind of digital shyness or, as Donelan (2016, p. 722) puts it, a lack of confidence in generating content to be disseminated through social media.

4 <https://www.redalyc.org/>

5 <https://scielo.org/en/>

6 <http://buscatextual.cnpq.br/buscatextual/busca.do?metodo=apresentar>

Second, there is a lack of understanding of how social media works. This situation might be caused by a series of circumstances; for instance, sometimes researchers do not know how to write for social media and simply lack the skills for using these tools (ibid.).

Third, some people are not aware of the fact that academic social media exist; some researchers think there are only general social media sites such as Facebook and Twitter. When this occurs, people believe that using social networking sites is just a waste of time or unimportant. For instance, a supervisor may ask: 'You spend a lot of time on Twitter, when are you returning to your research?' (V., personal communication, May 24, 2017).

User experience on the platforms themselves is also taken into account when deciding to use (or not use) a certain networking site. For instance, for some people, academic social networks are too hard to use or do not offer synchronous communication with other researchers. As one interviewee pointed out:

I have an account in academic social networks, but I do not participate much in them; Academia.edu, ResearchGate, for me [are] not so easy to use, these are static pages; For example, when you go on Twitter, people are already talking, but in Academia and ResearchGate, it is not very clear how to talk to people, or you have to talk to people as one by one; for example on Twitter, you can call the conversation to other people; in ResearchGate and Academia.edu, it is very close (V., personal communication, May 24, 2017).

Linguistic barriers and cultural issues such as academic status are also present since they translate from the real world to the online world. By way of illustration, using only Spanish or Portuguese on social networking sites is not enough for an integrated communication strategy targeted at an international audience. Nevertheless, using English but in a colloquial way or with typos, might make other researchers to take peers not seriously:

There is also academic status, for example if you do not speak English very well or if you speak colloquially or with

mistakes you may not be taken seriously; Then I think the networks make some things easier but there are other challenges such as transposing these linguistic or social, cultural or economic obstacles, because it is not true that everyone is in the networks (V., personal communication, May 24, 2017).

This issue clearly contradicts Budge et al. (2016), who argued that Twitter is breaking down some of the invisible barriers.

Some concerns about privacy and safety are also present (Donelan 2016); some researchers claim it is hard to draw a line between personal or private life and the public sphere, meaning work-related posting in social media. The negotiation between what constitutes a private life and the public sphere is also blurring and is getting increasingly complicated to define (Duffy and Pooley 2017). One researcher referred to this phenomenon as 'closing our digital borders so we have to manage our own information ourselves' (R., personal communication, February 17, 2017).

3.8 Hierarchy and prospective in the academic culture

On the perspective of SNSs in academic culture, there are some differing opinions according to the participants in this study. Some of the early career social sciences researchers pointed out that social media has had a positive impact in academia, while others were not so positive and think these supposed changes are mostly superficial since larger and structural changes take time.

On the one hand, researchers participating in this study argued that social media has already changed academic culture as it has enabled more horizontal knowledge sharing. Academia is a community of scientists that keep communicating, and now this communication has become more horizontal. Social media has allowed people to ask and give feedback instantly; as one researcher argued:

You can give them feedback instantly and ask them questions they may or may not answer you but that doesn't mean it's worse than before; it's actually better because you do have that

possibility before you didn't. So, I think it has built a community in that sense it has radically change academia, so we are now much closer than in the Ivory Tower as before (R., personal communication, February 17, 2017).

The sense of the non-hierarchical structure on Twitter can help researchers to get in contact with people that most probably would have been outside their scope of reach prior to the advent of social media. Therefore, Twitter and other social media platforms as well can help early career researchers to get more fluid connections (Budge et al. 2016). The connections, however, may or may not happen, since early career researchers can try to get in touch with someone specific but this person may or may not answer. However, the possibility is already there.

4 Conclusion

The various social media platforms have not yet replaced traditional communication channels in the case of early career social science researchers. The paper format is still the primary media of science communication in the university system. Social Networking Sites are mostly used for acquiring new information, new knowledge and informal scholarly communication. As the evaluation systems in Brazil have remained yet unchanged, they do not take into consideration participation in different platforms or social media metrics. Early career researchers and PhD students just concentrate on producing more scholarly research output.

SNSs use changes according to the affordances early career social sciences researchers see or fail to see for each of the platforms. The affordances of availability, scalability, visibility and multimediality are all related to social affordances whereas the offline social capital resources reflect themselves in the social networking sites. Social Networking Sites make visible the previously invisible colleges in academia since the online platforms embed the infrastructure. However, all of the initial online con-

At the university level and through referring to teaching processes, interaction with students through social media is also beneficial. Students are active users and are also very comfortable using these types of new media. Therefore, the active participation in Facebook groups is ongoing. Facebook especially is beneficial to complement classes, since there is a continuous dialogue about analyzing a problem.

On the other hand, there is the opinion that in particular disciplines changes take more time to happen. Therefore, at some point on the long-term horizon, social media will probably change and influence the way researchers communicate. Progressively, SNSs will be considered as reference spaces for science diffusion, mainly through the incorporation of metrics into the evaluation systems, but — as mentioned above — this not the case now in Brazil.

tacts must be endorsed later on by real life meetings. It is tough for early career researchers to achieve an effective collaboration by the sole use of social networking sites.

The barriers to Social Networking Sites use refer to the lack of confidence, lack of understanding of how social media works, linguistic barriers and cultural issues. Some researchers are not aware of the Social Networking Sites' existence; or — if they have an account in academic Social Networking Sites — they use these platforms as passive users because the social affordances are not so clear to them. We can see that certain issues such as linguistic and cultural barriers translate from the real world to the digital arena, contradicting the paradigm which argues that social media makes communication even easier. English turns out to be the primary language when communicating with other researchers, just using Portuguese — the official language in Brazil — is not enough for the effective use of social media. This preference is an interesting development since it mimics the current state of scholarly communications.

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