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Social network analysis: a guide to theoretical and practical initiation

Análise de redes sociais on-line: um guia para iniciação teórica e prática

ANA LÚCIA NUNES DE SOUSA *

Universitat Autònoma de Barcelona, PhD Program in Communication and Journalism. Barcelona – Catalonia, Spain

RECUERO, Raquel; BASTOS, Marco; ZAGO, Gabriela.

Análise de redes para mídia social.

Porto Alegre: Sulina, 2015. 182 p.

ABSTRACT

In this book, the authors Raquel Recuero, Marco Bastos and Gabriela Zago present the reader with a simple and accessible guide for initiation into the analysis of social networks as a research methodology of social media, as for instance, Facebook and Twitter. The basic concepts, a brief history of the study of social networks, patterns and analysis software and a rich set of examples, where the social media analysis can be applied, are presented in the work. The intention of the authors is to popularize the methodology and the tools so that more researchers can explore the field of social media.

Keywords: Analysis, social networks, social media, online

RESUMO

Nessa obra, Raquel Recuero, Marco Bastos e Gabriela Zago apresentam ao leitor um guia simples e acessível para iniciação na análise de redes sociais como metodologia de investigação de mídias sociais, como o Facebook e o Twitter. No livro são apresentados os conceitos teóricos básicos, um breve histórico dos estudos de análises de redes, modelos e softwares e um rico conjunto de exemplos, nos quais a análise de mídia sociais pode ser aplicada. O esforço das autoras e do autor é no sentido de popularizar a metodologia e as ferramentas para que o campo da mídia social possa ser explorado por mais investigadores.

Palavras-chave: Análise, redes sociais, mídia social, on-line

* PhD student in Comunicación y Periodismo at the Universitat Autònoma de Barcelona (Spain) and CAPES (Brazil) scholarship student. She has a degree in Social Communication with emphasis on Journalism by the Universidade Federal de Goiás (Brazil), is graduated in Hypermedia by the Instituto Internacional de Periodismo "José Martí" (Cuba) and master in Communication and Culture by the Universidad de Buenos Aires (Argentina). E-mail: anabetune@gmail.com
Article translated by Vik Birkbeck.

OVER THE LAST years, the Social Networks Analysis (SNA) online has acquired a complexity and status of methodology capable of comprehending the contemporary world, where we are permanently connected (Wellman; Haythornthwaite, 2002). In this sense, *Análise de redes para mídia social* (2015), by Raquel Recuero, Marco Bastos, and Gabriela Zago fills a gap in Brazilian research with regard to this subject. Up until this publication, there was no literature addressing SNA from a theoretical and practical approach. The anterior book by Recuero, *As redes sociais na Internet* (2009), was a start, but did not offer as many practical SNA examples as the work that we analyse here.

Análise de redes para mídia social is divided into four chapters, besides the introduction. The preamble (the introduction) and the first two chapters explain the basic concepts and main elements of SNA. The following two chapters are dedicated to more practical aspects of the methodology. The third chapter presents the main data gathering and analysis tools, focusing on introducing the main software and the types of visualization. In the fourth chapter, practical examples of SNA are described, such as political participation research, discourse analysis, and journalism.

In the introduction, the authors are concerned with explaining the basic concepts that are often confused both in theoretical and lay discourse. Thus, they define, for example, the network study as “the study of social patterns” (p. 24). Speaking about social networks is to speak about how people connect through groups. They call attention to the fact that the site is not the network, but a vehicle. Therefore, the social networking sites are spaces in the web that aim to create and maintain the networks. The social media is the appropriation of social networking sites by their users, when they propagate, replicate and make visible certain information.

The SNA is based on a set of metric indicators and research techniques that mathematically describe the relation between the nodes and their connections, and focussed on visualization. This way of analysing the links that people establish had been contemplated before by Sociometry and the Graph Theory, which are considered SNA sources. Sociometry uses matrix visualization, while Graph Theory proposes the network representation through an algorithm called *graph*.

Several nodes and their connections compose a network. When we analyse social networking online, the nodes are the actor’s representation and the connections are the interactions between them. A group is seen as a “collection of all actors where the links will be measured” (p. 56). The cluster is a denser aggregate of nodes because of the greater number of connections. A graph can

have several clusters. The social capital is the value constituted by the actors through their interactions. Both the cluster and the social capital can indicate the actor's influence in the network, which is one of the main focuses of the SNA study. The authors highlight the importance of the definitions utilized in the data miner, since this influences the network visualization. The data mining can be done starting from a single node (self-centered) or embracing all nodes and connections (complete). The networks can be formed by a mode or two modes. They may also present connections and directional edges or no directional.

The book briefly addresses the main SNA metric indicators. The metric indicators centered in the node analysis refer to centrality and are: degree, betweenness, proximity, eigenvector and PageRank. The network metrics are focused on the network as a whole and, in general are used jointly with the node metrics, previously described. The main metric indicators considered in this work are: density, group ability, structural holes, modularity, and centrality.

Most researchers work with a large volume of data and because of that, they use crawlers to do the data gathering. For twitter, the YourTwrapperKeeper (yTK) is the most used tool; for Facebook, it is Netvizz. Both are automatic tools that generate only a data set and the use of another software is necessary for visualization. Gephi is one of the most popular visualization and analysis softwares, being able to analyse data from yTK as Netvizz. NodeXL is another free program to visualize and analyse data (considered more user-friendly by the authors than the program cited previously). In these programs, using specific algorithms, the network is calculated and drawn. There are many algorithms – as Fruchterman-Reingold, ForceAtlas, Yifan Hu and OpenOrd – and each one of them can work with a huge number of nodes, allowing a unique visualization.

In the last chapter, the book addresses four practical examples of SNA in Twitter, using NodeXL and Gephi. The first case investigates the repercussion of the presidential candidates, during the election debate broadcasted in 2014. For each debate, the researchers selected a hashtag. The analysis showed the partisan, group activity and changes in the discourse during the debate. The second case analyses cases of racism and xenophobia, after the publication of election results. The study collected 36.600 tweets that used the keywords “Nordeste” and “nordestinos”. After the data collection a content analysis was realized of hate discourse and counter-hate discourse regarding North-eastern Brazil on Twitter. The research shows that the counter hate discourse was generating more visibility to the hate discourse. The third and fourth examples address the FIFA World Cup in 2014. Starting with the analysis of the

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hashtag #EstadãonaCopa 2.005 connections and 1.338 nodes were collected. The fourth example works with the tweets about the football player Podolski, from the German national football team. The data collection resulted in 2.999 connections and 2.707 nodes.

The book is well structured and written in a language accessible to lay people. The authors use many examples and mention several resources for those who want to deepen their knowledge. However, the practical examples analysed in the book refer only to Twitter. Considering that Facebook is the social networking site with most users in Brazil – and in the case of a work that aims to be an SNA analysis guide to social media – the absence of examples addressing this network is one of the shortcomings of the book, even if it has been justified. Besides that, in the first two chapters, before the description, there is a rich data analysis, what is not verified in the following examples. Another deficiency is the graph representation in black and white, which impairs the network visualization.

The book by Recuero, Bastos and Zago (2015) presented here is undoubtedly indicated for everyone who wants a first contact with the SNA of social media. It is easy to read, rich in examples, a book which shows how SNA can be practically applied, in the communications field, both in research and in a professional context. **M**

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