

Chapter 32

Brazilian Government's Training Network for Digital Inclusion: Analysis of Strategies for Improving Interactivity

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ABSTRACT

This chapter summarizes several previous studies on the analysis of social networks and presents some challenges in monitoring and evaluating large-scale training programs that make use of social networks. The main objective is to understand the dynamics and identify how information is shared among the participating agents of the training program. In this regard, the authors present various algorithms that apply metrics to social network analysis to assess the evolution of networks throughout the training process, and specifically, to discuss the application of these metrics in the evaluation of large-scale training programs for digital inclusion.

INTRODUCTION

Evaluation and monitoring of large scale training programs requires different techniques, systems, and methods of analysis. For training programs that make extensive use of social networks, we

emphasize approaches based on Social Network Analysis (SNA). SNA facilitates quantitative and qualitative analysis of social networks by describing the features of a network, either through numerical or visual representations.

The aim of this chapter is to present an application of SNA for the evaluation and monitoring of a training program for young people to act as

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agents of digital inclusion in their role as monitors of telecenters, specifically, in the context of the Telecentros.BR program. One of the objectives of Telecentros.BR is to train monitors in different regions of the country so that they can play an important role as agents of digital inclusion. Moreover, the monitors are encouraged to embrace social networking to facilitate collaboration in solving simple problems in the daily routine of telecenters.

In light of this, the chapter has the following objectives: (1) the application of algorithms to measure the centrality and density of interactions in a real scenario with a consolidated social network; (2) improving the process of large scale training by incorporating the use of social networks.

The chapter is organized as follows.

- Background provides broad definitions and discussions of the topic by incorporating a literature review of the application of algorithms for visualization and measurement of large-scale social networks.
- Challenges in measuring and monitoring large-scale training programs based on social networks – This section reports the main difficulties in applying monitoring and evaluation methodologies in training programs required to use social networks on a large scale. Additionally, this section provides solutions and recommendations for dealing with the problems presented. To this end, we present an application scenario, the “The National Network of Training”, which is a training program for monitors of telecenters covering all regions of Brazil. The scenario helps the reader to understand how social networks can support the daily tasks of monitors.
- Metrics to analyze the social networks of monitors, tutors and collaborators – presents metrics of centrality (for degree, closeness, and betweenness), average distance,

and density of monitors in the network. The algorithms associated with these metrics are applied to networks of monitors, tutors and collaborators over ten months of training, in order to visualize and analyze the evolution of these indicators.

- Results and Discussion presents a discussion on the relevance of the indicators obtained from the metrics, to provide feedback for the promotion of strategies and monitoring of interactions between monitors and monitors and tutors. The discussion is centered on the possibility of incorporating metrics for network analysis in the construction of a methodology for monitoring and evaluating large scale training programs.

BACKGROUND

Social Network Analysis (SNA) involves the mapping and measurement of relationships and flows between people, groups, organizations, computers, or other information/knowledge processing entities (Krebs, 2000). It is an approach that originated in Sociology, Psychology, and Social Anthropology (Freeman, 1996), and deals with relational ties between actors that can be analyzed as individual units or collectively, for example, departments within an organization, public service agencies, nation-states on a continent or in the world (Wasserman & Faust, 1994). This research approach has developed rapidly over the past twenty years, principally in studies in sociology (Galaskiewicz & Wasserman, 1993; Wellman & Berkowitz, 1988), science (Ben-David & Collins, 1966; Mullins, 1972; Price, 1986), and communication science (Monge & Contractor, 2001; Rogers & Kincaid, 1981).

SNA represents an area of interest for researchers from several fields of knowledge, giving rise to various methods of analysis that are based

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