



## Full length article

## Gendered discourse patterns on online social networks: A social network analysis perspective

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## ABSTRACT

The study examines the gendered discourse patterns on a popular online social network, TheMarker Café, using social network analysis. Overall, the findings strengthen previous analyses that report evidence of men's assertive and dominant discourse style and social role versus women's more cooperative and supportive discourse style. Men wrote more posts, while women commented on other people's posts more often. Women's posts received higher rankings than men's posts, strengthening the notion that women receive more affirmations on online social networks. The study also examined the interplay between the structure of the TheMarker Café network and gendered discourse patterns. Our findings also confirmed a link between activity network structure and women content popularity.

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## 1. Introduction

The role of gender in social conversations has attracted the interest of scholars for decades (Leaper & Ayres, 2007; Leaper, 2014; Maltz & Borker, 1982). A meta-analytic review of studies found strong evidence that men produce a more domineering and assertive discourse style in line with their perceived social status and competitive nature, while women's discourse style is more often characterized as affiliative and supportive (Leaper & Ayres, 2007). In light of the central role of online social networks in contemporary society, recent studies have moved to examine whether such traditional gendered discourse patterns persist in online social network environments or whether online social networks are a “game changer” (Brandtzaeg, 2015; Joiner et al., 2014, 2016).

This study aims to contribute to studies of gendered discourse on online social networks via a social network analysis of gendered discourse using *TheMarker*,<sup>1</sup> an online social networking site operated since 2007 by Haaretz, a prominent Israeli news outlet. While previous studies of online gendered discourse patterns

mostly used surveys (e.g., Joiner et al., 2014) or experiments to examine how men and women respond to messages (Joiner et al., 2016), the social network analysis method used in this study allows a deeper examination of the connections between members in a real social network environment and on a much larger scale than most alternative methods (Hayat & Lyons, 2010; Lesser, Hayat, & Elovici, 2016; Onnela et al., 2007; Szell & Thurner, 2013). Indeed, as noted below, the *TheMarker Café* community includes over 100,000 members, and over 1.7 million links, allowing a large scale and wide perspective on the issue.

The social network analysis method also makes it possible to identify the online network structure and thus illuminates not only the gendered discourse patterns but also the characteristic features of the network environment and their potential impact on community members' gendered discourse patterns. In contrast to previous studies of gendered discourse that did not address network structure, our analysis maps the link between network structure and the gendered discourse patterns within the network.

Traditionally, it has been argued that certain network positions within offline social networks are associated with increased influence, which may lead to advantageous benefits in offline social settings (Burt, 1992; Erickson, 1996). Recent evidence suggests that these arguments are also true for online environments (Szabo & Huberman, 2010). Typically, online sites facilitate various means of interactions between individuals, such as following or

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responding. These social and communication ties form a network which provides an opportunity for Online Social Network (OSN) members to increase their visibility and exposure, interact with others, and gain real advantage from their network position (Ellison, Vitak, Gray, & Lampe, 2014). However, researchers have not yet systematically investigated whether, and to what extent, online network structures affect OSN members' abilities to increase the popularity of their content. This article attempts to fill this gap. Building on prior research, we propose that online content's popularity is highly correlated with social network structures, and even more so with the communication interactions network. Our study identifies preferred network positioning that might enhance popularity among OSN users.

The understanding of how certain network structures – which are often associated with social capital – can be mobilized to gain benefits in online environments may assist individuals and organizations seeking to promote their messages. Furthermore, acknowledging gender-specific differences in OSN behavior can provide gender-targeted insights for OSN administrators and members aspiring for influence and leadership.

In line with all the above, and in order to contribute to the question of the social networks gendered discourse patterns, the analysis was specifically designed to examine the following research questions:

RQ1 Which gender writes more posts?

RQ2 Which gender comments on posts more often?

RQ3 The posts of which gender are more popular?

RQ4 Which type of social ties (friendship ties or activity ties) are more strongly correlated with content popularity?

To address these research questions, in January 2012, we collected all the historic data – including all the posts and comments – from *TheMarker Café* since its inception in 2007. A detailed description of the friendship network can be found in Lesser, Tenenboim-Chekina, Rokach, and Elovici (2013), and this portion of the dataset is also publicly available.<sup>2</sup> We collected the public portion of *TheMarker* dataset using a dedicated scraping tool, extracting information on two types of ties among its members – friendship and commenting – which were described by previous studies as the two main forms of communication between individuals on online social networking sites (Bohn, Buchta, Hornik, & Mair, 2014; Ghosh & Lerman, 2010). From the over 100,000 members of the network, 42% identified themselves as males, and 36% as females, and the remainder chose not to indicate their gender. As we also did not analyze dormant members, our analysis includes a total of 21,413 *TheMarker Café* members (52% males and 48% females) who disclosed their gender, had at least one friendship tie, and posted at least one comment during the period analyzed in this research.

Importantly, the question of whether traditional gendered discourse patterns persist in online social network environments is central not only for gender studies but also for information studies, which widely examine whether the web and social networks serve as “social equalizers.” This question arose in light of the notion that online interactions allegedly blur some of the external social boundaries that are emphasized in real-life situations, consequently weakening or erasing traditional “social roles.” Amichai-Hamburger, McKenna, and Samuel-Azran (2008), who analyzed the web's effect on social connections and on social power plays, argue that the web empowers socially disadvantaged individuals and thus the socially poor get richer. Indeed, studies found that

individuals who suffer from high levels of social anxiety benefit from interacting in small groups online because the factors that trigger their anxiety in face-to-face situations are absent in text-based Internet interactions (McKenna & Seidman, 2006; McKenna, Green, & Gleason, 2002). Other studies found that the greater sense of control and security in online interactions benefits introverts, neurotics (Amichai-Hamburger, 2005; Maldonado, Mora, Garcia, & Edipo, 2001), and people with physical disabilities (Raghavendra, Newman, Grace, & Wood, 2013).

In contrast to this optimistic notion, other studies show that the opposite effect occurs in many instances, as the socially rich accrue even greater social assets online. Thus, for example, studies show that attractiveness levels rise when Facebook members have good-looking friends (Walther, Van Der Heide, Kim, Westerman, & Tong, 2008), further compounding effects of the offline beauty bias (Rhode, 2010). Furthermore, in a gender studies context, a recent big data analysis (Brandtzaeg, 2015) that examined gender differences in civic engagement across countries found that traditional gendered discourse patterns persist in online social network environments, and concluded that Facebook is definitely not “the great equalizer.” Analyses by Joiner, Stewart, et al. (2014) and Joiner et al. (2016) also identified persistence of traditional women affiliative discourse versus males' dominant discourse on social networks online.

To contribute to the debate over the web's role as the great equalizer and an e-empowerment tool, the current study contributes to the ongoing mapping of the issue not only by continuing examining the interplay between gender and social media discourse but also by examining the interplay between social network structure, gendered discourse, and content popularity, thus addressing a lacuna in contemporary studies. To place the study's hypotheses in context, analyses of online and offline gendered discourse patterns are reviewed below.

## 2. Related work

### 2.1. Social network analysis

In recent years, the rise of the Internet has facilitated the emergence of an enormous volume of traceable communication on frameworks such as OSN, providing an opportunity to study social networks on a larger scale (Onnela et al., 2007; Szell & Thurner, 2013). Often these studies have been based on the social network analysis (SNA) methodology (Wasserman & Faust, 1994). A key element of social networks is the ability for individuals to simultaneously interact in multiple social contexts by maintaining different types of social ties such as friends, acquaintances, and correspondents. The overlay of several networks on the same set of nodes (individuals) is called a multiplex network (MPN). A MPN facilitates the description, quantification, and analysis of complex sets of relationships among individuals.

A large and growing body of literature has investigated gender differences in this area by studying the social networks of males and women (e.g. Brashears, Hoagland, & Quintane, 2016). These differences are manifest on several levels. Women's networks are often larger than men's networks (Moore, 1990), and they include a higher proportion of kin (Marsden, 1987). Furthermore, females often provide more interpersonal support in this setting than males (Wellman & Wortley, 1990). Gender-specific differences in managing the multiplex network ties were also demonstrated on a dataset of an online-gamers community (Szell & Thurner, 2013). Thus, it is clear that the networks of men and women – including OSNs with multiple types of social ties – differ on several levels.

OSNs typically include technical functionality that enables various types of communication (Amichai-Hamburger & Hayat,

<sup>2</sup> <http://proj.ise.bgu.ac.il/sns/themarker2.html>.

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