

Age-related Differences in Online Social Networking

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ABSTRACT

Systematic developmental changes in personality have been observed over a large portion of the human lifespan. Furthermore, in separate studies, these traits have been shown to be predictors of local social network structure centered on an individual (i.e., ego-centered networks). We are currently exploring a sample of over 35,000 users in an online social networking community, ranging in age from 15 to 55, to investigate age-related differences in individual ego-centered networks. Our data will allow us to explore structural holes, reciprocal interactions, transitivity, and network similarity across ages for multiple attributes (e.g., age and location).

Categories and Subject Descriptors

J.4 [Computer Applications – Social and Behavioral Sciences] – *sociology, psychology*. H.3 [Information Systems – Information Storage and Retrieval – Information Search and Retrieval] – *search process*.

General Terms

Measurement, Theory

Keywords

Social Network Analysis, developmental factors, preferential attachment, social computing, MySpace.com

1. INTRODUCTION

Systematic developmental changes in personality have been observed over a large portion of the human lifespan. Narcissism, associated with a lack of empathy and a need for admiration, shows a steady monotonic decline from age 15 to 50 (Foster et al., 2003). Even over the span of college life, significant and systematic changes are observed in four of the Big Five personality trait dimensions, with individuals on average becoming more agreeable, conscientious, and open, but less neurotic. In a large web-based survey, Srivastava et al. (2003) has shown that these personality trait changes span a period ranging from at least age 20 to 60.

Recent work by Kalish & Robbins (2005) indicates that similar psychological traits are significant predictors of ego-centered social network structure. Personality traits associated with neuroticism, locus of control, group focus, and extraversion correlated in a predictable fashion with distributions of triadic relationships in self-reported social networks (see also Klein et al.,

2004). Other work has shown that narcissists are generally highly extraverted (Bradlee & Emmons, 1992).

Observed changes in personality over the lifespan and a significant tendency for personality traits to be associated with social network structure suggest a strong likelihood that online ego-centered networks (networks centered around an individual, ‘the ego’, and constrained to the egos immediate relationships, ‘the alters’) will show predictable and systematic changes across ages.

The emergence of large online social networks such as MySpace and Facebook present the opportunity to investigate these age-related differences in social network structure in a non-invasive way. While online data is potentially subject to its own set of constraints, web based investigations have been found to offer substantial robustness (due to large sample sizes) while simultaneously reproducing the results of psychological personality studies using non-web-based methods (Gosling et al., 2004).

To investigate the age-related differences in online social networking, we selected a large online social community of over 57 million registered users and, using crawler-based technology, randomly sampled individuals of different age-classes. Our data allows us to investigate relations based on both friendship claims as well as recent communications shared between users. Our ongoing research seeks to investigate the correlation between these differences and the social network of individuals, based on criteria such as structural holes, transitivity, reciprocal interactions, local clustering, and individual similarity across non-network attributes (e.g., age and location).

2. Methods

2.1 Participants

MySpace is a very large online social networking community that allows its registered users to create a publicly viewable profile, to which connected friends can post comments. We designed a web-crawler to randomly sample individuals from this community. Our initial crawl captured 35,411 egos from the MySpace network, and stored their age and sex, as well as their city, state and country – where the data was available. The age distribution is shown in Figure 1. This crawl yielded friend and comment networks with over 500,000 edges.

We then took a representative sample of all 14-34 years olds from the ego list as our seed, and crawled each of their alters’ profiles. This provided us with a full ego-centered network, with the age and sex attributes for all actors, and city, state and country for most actors.

2.2 Procedures

Using this dataset, we are performing an exploratory analysis in order to better understand the nature of network, and most importantly the nature of the connective tendencies of egos based on their developmental differences.

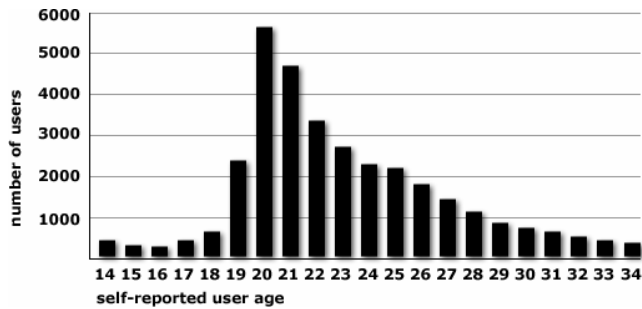


Figure 1. Age distribution of initial crawl.

2.2.1 Friend and Comment Degree

Our data allows us to examine and compare two relational networks, claimed friendships (which are reciprocal and can be created by ‘poking’ another user by inviting them to be a friend) and directional relations based recent posts to another users page. These relations will be explored for sex and age related degree differences as well as second order structural features using triadic analyses, such as structural holes and transitivity.

2.2.2 Similarities based on Attributes

Nonstructural attributes include age, sex and geography, will be compared with one another and with structural attributes (such as degree-related factors) to test for age and sex related differences in local network similarity.

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