A First Step Towards a Conceptual Reference Model for Comparing Social User Profiles[*]

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As a recent survey [3] revealed, user modeling approaches have not yet particularly focused on modeling social aspects of users, although several proposals for representing these social aspects emerged (e. g., [1]). In this paper we propose a first sketch of a conceptual reference model for social user profiles, balancing between generality and expressiveness. This reference model can be extended towards different application domains, while still capturing essential aspects of social user profiles for enhancing expressiveness, admittedly, not yet universally covering the social user domain. The applicability of this conceptual reference model is demonstrated by providing a suitable basis for a comparison of user profile concepts stemming from social networks and user modeling approaches.

Social profile reference model. The reference model[3] was developed (i) in a bottom-up fashion from generic and specific social network APIs and user modeling approaches (focusing on social aspects as URM [8], UUCM [6], or being generic as GUMO [5], GRAPPLE [2]), and (ii) in a top-down manner from existing surveys on user modeling (e. g., [3], [7]). In accordance with research on flexible user modeling [1], the conceptual reference model comprises a generic part, which is capable of covering arbitrary *resources* and *relations* (cf. RDF). With respect to resources, extensions to this generic part are specified (i) in terms of a *classification* into concrete domain concepts (e. g., agents discerned into users and non-human agents), as well as (ii) by associating these resources with *meta information*, such as provenance and privacy information. *Universal structural relations* (e. g., a user owning a book) and *universal behavioral* ones (e. g., agents interacting with each other) characterize the relationships between *agents* and other resources. *Social structural relations* (e. g., user relationships) and *social behavioral* ones (e. g., social activities) specialize these relations between users.

Eval. Results. In order to identify differences and commonalities in-between user data provided by social networks and the concepts being representable in user modeling approaches, we have applied our conceptual reference model for an evaluation of social network concepts and user modeling approaches (cf. Fig. 1). Altogether, our evaluation yields three major findings[3]: First, the integration of multiple social networks results in more comprehensive user profiles (as also observed in [1]). Still, information on social cognition (in particular personality,

[3] More details can be found at http://social-nexus.net/.

(a) Social networks
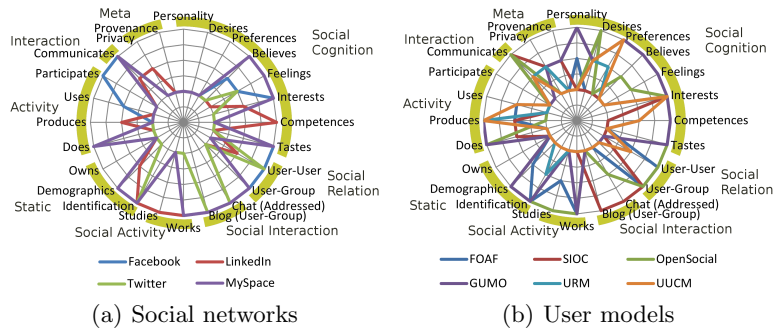
(b) User models

Fig. 1. Comparison of social networks and user models

desires, and preferences) are not provided by social networks, but would be a pre-requisite, e. g., for sophisticated product recommendation [4]. Second, social networks keep track of demographic information and support extensive communication facilities around which their focus is built (e. g., competence description on LinkedIn, events on Facebook). On the contrary, user models are more diverse and focused, as indicated by the large number of different spikes in Fig. 1(b). Two models, however, have a rather broad focus: with respect to social cognition GUMO provides a comprehensive set of concepts, however, omitting social relationships, whereas the OpenSocial API complements this view with communication and social interaction concepts. Finally, and unsurprisingly, the OpenSocial API is a good overall fit for representing information from social networks. In some cases, other more specialized models may be more appropriate (e. g., GUMO for social cognition in MySpace, UUCM for products in LinkedIn). Concluding, these differences call for an extensible user profile for which our model may serve as a first starting point.

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