

User Modeling Using Social and Game Principles

Peter KRÁTKY*

*Slovak University of Technology in Bratislava
Faculty of Informatics and Information Technologies
Ilkovičova 3, 842 16 Bratislava, Slovakia
kratky.peto@gmail.com*

User's personality has a significant impact on the way the user uses web applications. Many systems would take advantage from adapting content or search according to personality traits. Examples of such applications are social networks that provide search for a suitable relationship or education systems that might improve efficiency of learning process by adapting to different personalities which correspond to different learning habits [5]. The rising number of personalized systems that require availability of user's characteristics supports the fact that need for modeling user's personality traits is emerging [2]. However, this specific kind of user modeling is still less explored than the others and that's why it has become challenging for us.

The traditional approaches of modeling user are explicit methods such as modeling based on questionnaire, especially when it comes to personality traits. This attitude is simple and straightforward. There is countless amount of answer sheets that are widely used in various industries to predict one's personality. On the other hand, explicit methods of data acquisition might be obtrusive or might seem too personal for him/her [1].

In our project, we focus on designing user modeling method which collects data from the user in funny and appealing way. For this purpose we want to use benefits arising from computer games. The first benefit is possibility to perform data collection while user enjoys the game, so the probability of providing data is much higher than traditional approaches come with. Secondly, the actions user performs during the game play reflect his/her actions in the real world. There has been performed research work which proves correlation between some personality traits and actions done in the game [3]. However there are only few gaming actions only in specific games that are proved to map themselves to some personal traits. And this is a big issue we have to deal with.

In our work, we have defined few steps to follow, of both designing and experimental character. We have decided to integrate the process of verification in the whole process so we have adjusted the steps according to it. Firstly, we will start with

* Supervisor: Jozef Tvarožek, Institute of Informatics and Software Engineering

designing an explicit question form for acquisition of the user's characteristics and deploy it in an information system. Further, we will design a set of actions tracked in the game and set of actions tracked in the information system. We want to prove the assumption that the actions in the information systems are insufficient to model personality profile and therefore the need for other approach arises. Finally we design an inference method for prediction of the user's personality profile.

The first step is crucial to decide which characteristics we want to model. The most widely used model in general practice is Big Five. This structure defines personality in five dimensions (Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Intellect). We can benefit from the fact that the characteristics are rather exclusive and represent personality at the broadest level of abstraction [4]. The advantage of a user model based on this well-known structure might be possibility to share among many adaptive systems. We need a measurement instrument that allows us to obtain the user's characteristics the most accurately as we can. For this purpose we use an official questionnaire and deploy it in an information system, for example educational system ALEF.

In the next step we use an instance of a game that is able to track performed actions. We take into consideration an open-source game or a game developed by students of our university. The second experiment will provide us collected data over the game and the information system. Then, they are used for regression analysis that will allow us to find correlations between the actions and the personality traits. As mentioned above, we expect better results from the data provided by the game.

Using the discovered correlations we will design a method that infers user's personality just from the gaming actions. This method should be able of subsequent continuous modeling and considering data of other users depending on whether the chosen game is long-term and multiplayer.

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References

- [1] Barla, M.: Towards Social-based User Modeling and Personalization. Dizertačná práca. Bratislava: STU FIIT, 2011.
- [2] Ho, S. Y., Davern, M. J., Tam, K. Y.: Personalization and choice behavior: the role of personality traits. SIGMIS Database, 2008, ACM, Vol. 39, pp. 31-47.
- [3] Herodotou Ch., Kambouri M., Winters N.: The role of trait emotional intelligence in gamers' preferences for play and frequency of gaming. Computers in Human Behavior, 2011, Vol. 27, No. 5. pp 1815-1819
- [4] John, O.P., Srivastava, S.: The Big five trait taxonomy: History, measurement and theoretical perspectives. Handbook of personality theory, Guilford Press, New York, 1999.
- [5] Lepri, B., Mana, N., Cappelletti, A., Pianesi, F., Zancanaro M.: Modeling the Personality of Participants During Group Interactions. Proceedings of the 2009 Conference on User Modeling, Adaptation and Personalization, 2009, pp. 114-125.