

Integration and Adaptation of Motivational Factors into Software Systems

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Gamification defined as „applying the mechanics of gaming to non-game activities to change people’s behavior“, is often used in variety of areas including business services, behavior promotion, content portals or even in project management web applications. After widespread adoption in the second half of 2010, the term itself is unfortunately now often misused for marketing purposes. Nevertheless, the idea of using game mechanics and dynamics to drive participation and engagement, mostly by using extrinsic motivation, is certainly worth further examination. Examples of game mechanics include points, levels or challenges whereas game dynamics include reward, competition or achievement.

The entire field however needs to be examined to determine what elements work in what situations as we do not currently know how exactly they affect our motivation, both positively and negatively, and which combination of game mechanics are suitable in given situation. Moreover, is it still not clear what effect these mostly extrinsic game mechanics have on human intrinsic motivation as “corruption effects of extrinsic incentives” [4] could overweight positive aspects. Research suggests that using an extrinsic reward have significant negative effect on our motivation as they undermine free-choice and self-reported interest in the given task [5, 6]. Recent study of badge systems [1] however suggests that negative aspects are mostly contributable to poor design of such systems.

In our work we seek to integrate and adapt game mechanics and dynamics in the domain of health promotion, specifically to motivate people engage in appropriate physical exercise. The solution will be implemented in Move2Play [3] system, which already provides required activity tracking, evaluation and recommendation of appropriate physical exercise for our purposes on Android platform. This system will also be deployed in Android Market, which should hopefully provide enough users for evaluation of our proposed method.

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Integration of motivational factors is based on extensive review of literature and existing applications. We have identified both common game mechanics and dynamics used in various domains, focusing mostly health promotion. As motivation varies among people we integrate various types of motivational factors, both intrinsic and extrinsic, as for a single user it is more engaging when there are multiple types of motivation throughout the day. For each user we maintain his personality model proposed by Bartle [2] using four personality types – Achievers, Explorers, Socializers and Killers. This model is used when choosing appropriate game mechanics and dynamics for users.

Adaptation consists mainly from tailoring motivational content using user interests. To obtain such user interests we will use rather simple approach consisting of analyzing popular social networks such as facebook and twitter which we believe will be sufficient for our purposes. Relevant interests include favorite music, movies, TV serial, books, sports or hobbies. When recommending appropriate content, it is equally important to consider interests of user and her friends when promoting social motivation.

Game mechanics and dynamics are placed in content, for example music band, a movie, book or a local or global event such as valentine. Content is important because core mechanics does not change very often and therefore we need to change content of these mechanics to keep user interested. Also the domain of physical exercise inherently contains repetitive tasks, which could become boring over time, if not boring already from beginning. Most of current integrations of game mechanics use content sources created by domain experts, but we are going to propose a method to obtain subset of such content automatically.

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