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# **Gamifying Information Systems - Improving Motivation and Effective Use Through a Theory-motivated Method**

*TREO Talk Paper*

Sofia Schöbel  
**University of Kassel**  
Information Systems  
*sofia.schoebel@uni-kassel.de*

Andreas Janson  
**University of Kassel**  
Information Systems  
*andreas.janson@uni-kassel.de*

## **Abstract**

Gamification refers to using game-like elements in non-entertainment-based contexts to engage system users with a more regular system use. One major problem in gamification research is the absence of methods for designing game elements and the lack of guidance about how to develop gamification approaches. Consequently, existing gamification methods oftentimes have theoretical and methodological weaknesses. On a theoretical level, user needs, and interests are neither specified nor data-driven in existing methods. Additionally, the selected game design elements are often not linked to the users' interest and to relevant system activities. Methodologically, gamification methods lack an iterative prototyping iteration, and they oftentimes do not provide design guidelines or principles to better understand how to proceed in each step of a method.

By using a design science approach and under consideration of the weaknesses of previous gamification methods, we developed a method using five different steps, each having a theoretical grounding as well as an evaluation. The five steps of our method are: activity identification, persona identification, game design fit, implementation, evaluation. Overall, our method follows an iterative process for gamifying information systems and it provides design implications for each step. To overcome methodological weaknesses of previous methods, an evaluation is conducted in each step. We consider a systematic literature review in the first step, interviews for the description of personas in the second step, workshops to identify the game design fit in a third step, and in the last two steps, an experiment for the implementation and evaluation of the users' motivation and usage frequency. Furthermore, the method developed, and its steps are based on task-technology fit theory, self-determination theory and flow theory as kernel theories. More precisely, referring to the first step, the task-technology fit theory guides the task and system analysis. User characteristics (or so-called personas) are considered by utilizing self-determination theory. To describe the characteristics of game design elements the method relies on the existing work that is provided by gamification researchers. Finally, flow theory is used to measure the users' motivation and their usage behaviour when they use the gamification concept we developed in an information system. To better demonstrate the method development a non-gamified learning management system is used.

Summarizing this, our research will contribute to a theory of design and action to the body of knowledge that helps to gamify information systems. Furthermore, the developed method helps to better understand how to design and adapt game elements to the needs and interests of a target group as well as to system activities. Practical contributions can be given to system developers and researchers about the step-wise development of gamification approaches and the adaptation of game design elements. We therefore provide an iterative process with design guidelines that assist practitioners in gamifying information systems.