Gamified Helping? The Impact of Individualized and Group-Level Cooperative Evaluation on Knowledge Sharing

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Abstract. Even though knowledge sharing is an important part of cooperation in organizations to ensure productivity and economic functioning, employees sometimes refrain from sharing knowledge with colleagues. Accompanied by the digital disruption of work, one fruitful way to improve organizational knowledge sharing between employees is the design of technology. However, which technological design elements improve knowledge sharing is still not well understood. This research-in-progress paper combines research on knowledge sharing with the common ingroup identity model to investigate the effect of individualized and group-level gamification design of cooperative evaluations on knowledge sharing behavior. We hypothesize that using group-level design facilitates intrinsic motivation for knowledge sharing by highlighting a superordinate identity. On the other hand, individualized design should enhance knowledge sharing by increasing extrinsic motivation. We plan to test these hypotheses using a 2 (individualized evaluation: badges vs. none) x 2 (group-level evaluation: badges vs. none) between-subjects experiment.

Keywords: gamification, prosocial behavior, cooperation, experiment

1   Introduction

Knowledge sharing (KS) is an essential part of organizational work that can increase employees' organizational performance and productivity over time [1, 2]. Unfortunately, employees differ in their motivation to share knowledge according to contextual and individual differences [3–5]. As a consequence, Information Systems research can provide pursuing insights into how technology can be designed to increase individual motivation and subsequently KS behavior [6].

Gamification, as the use of game elements in non-gaming contexts [7], has shown to affect motivation. A range of different gamification elements exists that are proposed to address motivation to different degrees [8]. Additionally, research has shown that gamification design aimed at cooperation can enhance KS intention and behavior [9, 10]. In this research in progress paper, we focus on the design of

individualized and group-based evaluative aspects that are connected to displaying badges as rewards for enacting KS behavior. Therefore, we have the goal to foster KS by designing software for mediated communication and aim to investigate the following research question: *How can the individualized and group-level design of gamification elements facilitate knowledge sharing?* To investigate this research question, we plan to conduct a 2 (individualized evaluation: badges vs. none) x 2 (group-level evaluation: badges vs. none) between-subjects experiment aimed at getting more insights into the initial stage of introducing gamification design elements in an organization.

2 Theoretical Background and Hypothesis Development

The research model is displayed in Figure 1 and the hypotheses are developed in relation to theory below.
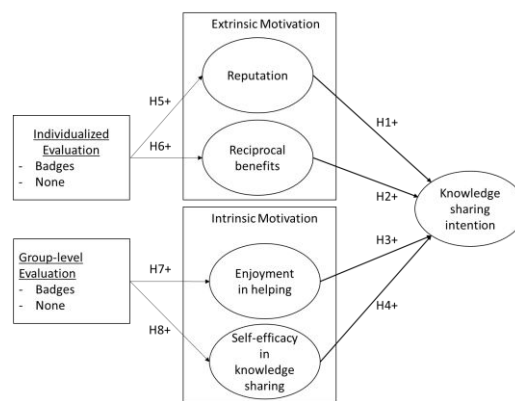

Figure 1. Research Model

2.1 Knowledge Sharing

Knowledge can be defined as consisting of "information, ideas, and expertise relevant for tasks performed by individuals, teams, work units, and the organization as a whole" [11]. As a consequence, KS describes the process of contributing knowledge to other individuals or groups [3, 12]. KS has been associated with a range of predictors, including environmental factors, individual characteristics, and motivational factors [13]. From a motivational perspective, KS can occur out of extrinsic and/or intrinsic motivation [14], which has already been investigated in the context of different KS applications [14–16]. This research showed that extrinsic predictors of KS consist of reputation and reciprocal benefits, whereas intrinsic predictors are self-efficacy and enjoyment [14–16]. However, evidence for enjoyment as predictor is still mixed [14]. On the basis of this literature, we hypothesize that perceived reputation, reciprocal benefits, enjoyment in helping others, and self-

efficacy in KS leads to increased KS intention (H1-4) to gain more insights into motivationally relevant predictors for KS.

2.2 Gamification Design

Extrinsic motivation: Reputation and reciprocal benefits constitute indicators for extrinsic motivation. Reputation describes the evaluation of a person based on their past actions, whereas reciprocal benefits refer to the idea that someone else or the helper benefits after someone has received help [17]. As a consequence, reputation is increased when KS activities are visible to other individuals in the organization [14]. In line with this, expectations for reciprocal benefits should also be increased if evaluations of past cooperative behavior is disclosed. We therefore hypothesize that providing individualized evaluation on KS activities increases expected reputational benefits (H5) and reciprocal benefits (H6).

Intrinsic motivation: Enjoyment in helping others and self-efficacy in KS are indicators of intrinsic motivation. Enjoyment in helping others describes a positive feeling that is related to enacting in altruistic behavior [15]. Based on the common ingroup identity model [18, 19] individuals should engage in more altruistic behavior if a superordinate group category is made salient. In the case of KS, group-level evaluation consists of such a superordinate group category. Accordingly, when group-level evaluation is given, individuals should perceive higher enjoyment than when no group-level evaluation is given because they consider themselves part of the group that receives help (H7). On the other hand, self-efficacy describes the perception that one's KS contribution is successful [3]. Therefore, we expect that providing group-level evaluation will increase the salience of group-level benefits through KS and subsequently increases self-efficacy in KS (H8) by making possible benefits more transparent.

3 Method

Participants & Design: We plan to recruit 128 participants through the crowdsourcing platform clickworker.com. Participants will be told that they will participate in a survey investigating the effect of e-mails on motivation. To test the hypotheses, we will use a 2 (individualized evaluation: badges vs. none) x 2 (group-level evaluation: badges vs. none) between subjects design.

Procedure: The procedure related to the non-gamified aspects of the study is adapted from [4, 5] and consists of four steps. First, participants are introduced to the gamification system in their company. For this, participants are told that they are junior-level programmers. Additionally, their company has just implemented a system that evaluates employees on the basis of their intraorganizational cooperation. The system consists of five stars and with each cooperative task the amount of yellow in the stars increases. According to evaluation condition, participants are told that individualized and group-level evaluation are [not] used in their working group. Second, participants are introduced to the KS context. They are told that they work

with a colleague named Alex in the same department and it is revealed that Alex refused to fix a program bug about a month ago. Third, they see a screenshot of a message in which Alex asks them for help (see Figure 2). The screenshot image adopted from the Radboud Face Inventory [20]. Fourth, they will answer questionnaires for the dependent variables.

Measures: KS intention will be measured with a question adapted from Fehrenbacher [4]: "What is the likelihood you would give a copy of the program to Alex?" (1 = not at all likely to 7 = very likely). The predictors reputation, enjoyment and self-efficacy are adapted from Kankanhalli [16] and the reciprocal benefits scale is adapted from Lin [15]. The scales are measured with four items each and were rephrased to the situational context of this study. For all of the following items, participants answered on a 7-point likert scale (1 = strongly disagree, 7 = strongly agree). An example item for reputation is "Sharing my program with Alex improves my image within the organization". An example item for reciprocal benefits is "When I share the program with Alex, I expect to receive knowledge in return when necessary". An example item for enjoyment in helping others is "I enjoy sharing the program with Alex". Finally, an example item for self-efficacy in KS is "I have the expertise needed to provide valuable knowledge for my working group".

Gamification Design: The different gamification designs are displayed in Figure 2. Participants are told that the evaluation was introduced today and therefore everyone has only the lowest level (one star). By engaging in KS behavior, the level can be increased. For *the individualized evaluation design*, stars are displayed as badges for the participants (You) and Alex in the badges condition, which indicates their degree of cooperation. In the condition without badges, the area is blank. For the *group-level evaluation design,* the stars are the same as in the individualized evaluation design, the only difference being that the stars represent the overall degree of cooperation inside the working group as whole.
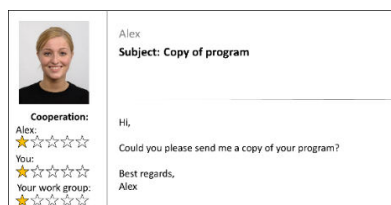
Figure 2. Example of gamification design (individualized and group-level evaluation)

4   Outlook

Our next steps consist of programming the questionnaire and pre-registering the study with a detailed data analysis plan and all relevant methodological details (e.g. on https://osf.io). Next, we will start data acquisition and afterwards analyze the data. We expect that the results of our study will contribute to research on KS by identifying the working mechanisms of individualized and group-level gamification designs. Additionally, the results of the study can be used to increase the

understanding of KS in relation to gamification elements in organizations. On the basis of our findings, future research can investigate additional gamification designs that facilitate KS through creating a common ingroup. Additionally, the effects of the gamification designs for group coherence and employee conflict can be explored.

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