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Don't take away my status! – Evidence from the restructuring of a virtual reward system

Tobias Mutter *, Dennis Kundisch [1]

University of Paderborn, Warburger Str. 100, 33100 Paderborn, Germany

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ABSTRACT

In a natural experiment on a popular German Question & Answer community we investigate how user status demotion affects user activity levels in online communities. The virtual reward system on this platform is designed to activate the status seeking behavior of its members. The members' status within the community is represented by the member's rank. In the experiment the platform operator restructured the virtual reward system, in the process reducing or abolishing the incentives for selected activities on the platform. After restructuring nearly all users saw their status demoted, with almost three quarters having lost one rank, and more than a quarter having lost two or more ranks. We identify the impact of status demotion by comparing how the members in these two groups respond to the restructuring. We find that users who lost two or more ranks reduce their post-event activities for which the incentives were reduced or abolished by 18% more than those who lost only one rank, and by 9% more than the latter for activities which were unaffected by the event.

1. Introduction

Since the inception of the Internet the number of online communities is constantly expanding and at the same time information technology is transforming the way people communicate and interact [9]. Online communities are used by people to share information, develop relationships, conduct business, and play games [28]. Despite the success of some online communities, many communities severely struggle with overcoming nonparticipation and low levels of contribution by their users (e.g., [9], [27], [34]). Therefore, a key challenge for online community providers is how users can be activated or incentivized so that they are not merely passive users but active contributors, and at the same time how to foster and sustain the activity levels of existing contributors (e.g., [33]).

Compared to traditional offline communities, online communities give operators an augmented set of options to stimulate user contribution behavior. This includes technological features like virtual reward systems, which are implemented in many popular online communities (e.g., Stack Overflow, Kahn Academy) [2]. Common features of such virtual reward system are points, levels and ranks, which are designed to activate the status seeking behavior of users (e.g., [6,20]). Typically, users can earn these rewards by performing selected activities, and in this way increase their status within a community. Status or the relative rank in a certain group acts as a potent motivator for human behavior (e.g., [10,16,25,35]). Some research suggests that virtual reward systems can positively affect user activity levels (e.g., [2,15,20]) and, hence, activate the status seeking behavior of users.

* Corresponding author. Tel.: +49 5251 60 5531.
E-mail addresses: Tobias.Mutter@wiwi.uni-paderborn.de (T. Mutter), Dennis.Kundisch@wiwi.uni-paderborn.de (D. Kundisch).
[1] Tel.: +49 5251 60 5533.

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Virtual reward systems are rarely static, however, since community providers tend to amend them from time to time, with the intention of refreshing or improving their effect on user contribution. Common adjustments typically include modifications made to the structure of the point or award scheme. For example, the number of points needed to achieve ranks may be increased if it is felt that too many users have reached the highest level or rank on the platform, or that the virtual reward system is deemed to be ineffective in activating status seeking behavior. Depending on how the restructuration is designed, users may lose points and ranks in the process, i.e. they may experience status demotion. The effect of the restructuration of a virtual reward system on user activity levels in online communities has, to our knowledge, not yet been investigated. This could however lead to promising and useful results, especially as, in the field of marketing, research on customer loyalty programs suggests that consumer spending levels are negatively affected by customer demotion [41]. Whether these results also apply to user activity levels in online communities is a question that requires further needs to be explored. The difficulty of transferring results from the one environment to the other arises because online communities with virtual reward systems – unlike typical loyalty programs – provide environments without monetary or quasi-monetary benefits (e.g., upgrades, lounge access or priority booking at frequent flyer programs).

We exploit a natural experiment to analyze how status demotion affects user activity levels in online communities by using a unique and rich dataset provided by a German Question & Answer (Q&A) community. This exclusive dataset includes detailed information about all user activity on the platform between February 2006 and April 2008. The natural experiment took place in February 2007, in the middle of our observation period, when the operator of the platform undertook a fundamental restructuring of the virtual reward system. All registered users on the platform under study automatically participate in a virtual reward system, which assigns them a status within the community. On performing certain selected activities, users are rewarded with so-called status points, and by accumulating status points, users automatically move up in an ascending (hierarchical) ranking system. As part of the restructuration, the community provider changed the status point scheme for selected activities on the platform and retrospectively recalculated the total number of status points of each user based on the new incentive scheme. In addition, the provider modified the ranking system. These changes had two major consequences: (1) the incentives in form of status points were substantially reduced and, for certain activities, abolished, (2) almost three quarters of users were demoted by one rank and more than one quarter lost two or more ranks. To analyze the impact of the restructuring, we compare the contribution behavior of 1,647 users in the four weeks before and after the event.

We observe that both groups of users – those who lose one rank and those who lose two or more ranks – reduce their post-event activity levels, and the drop is even more pronounced for users who receive the stronger treatment. We identify the impact of status demotion on subsequent user contribution levels by comparing how each of these two user groups (the first losing one rank, and the second, losing two or more ranks) respond to the restructuring. After taking into account the reduction in the post-event activity levels of users who lose one rank, we find that the users who are demoted by two or more ranks reduce their activity levels by 18% for activities for which the incentives were reduced or abolished, and by 9% for those that were unaffected by the event. Hence, user status demotion has a statistically and economically significant negative impact on user contribution behavior.

This paper makes novel and significant contributions to research. To the best of our knowledge, we are the first to provide empirical evidence for the impact of status demotion on user activity levels in online communities. Our findings extend the work undertaken by Wagner et al. [41], but with the important difference that their research investigated hierarchical reward systems which offer monetary and quasi-monetary incentives, whereas our reward system only offers non-monetary benefits. Moreover, we contribution to the literature on online communities by offering new theoretical insights on the impact and operation of the key drivers that stimulate or inhibit user contribution behavior.

2. Theory and hypothesis

2.1. Literature review

Three streams of literature are relevant to our study. The first is concerned with the general design of online communities. The second investigates how virtual reward systems can be used to incentivize user engagement, while the third is related to the impact of status and status demotion on human behavior.

2.1.1. Design of online communities

The literature on the general design of online communities falls into two categories. In the first, the design is typically assumed to be immutable, and researchers purely focus on analyzing motivational factors. Existing research suggests that citizenship behavior and the desire to benefit an organization also act as motivational factors [10]. Users contribute more if they think that their actions enhance their professional reputation, or when they have the opportunity to share information with others, or if they are structurally embedded in a network [40]. Other factors that have been shown to have a positive effect on user activity levels include an awareness of one's own efficacy, and the enjoyment of helping others [22]; recognition from the community, user experience and individual attributes (such as being a hobbyist) [21]; and perceived identity verification [28].

In the second strand of literature researchers selectively manipulate design features or personalized user information, and subsequently analyze changes in user contribution behavior. Researchers find that users increase their contribution of knowledge and experience an enhanced community attachment if they are reminded of their uniqueness and by setting them specific and challenging