A Preliminary Study on the Effects of Barnstars on Wikipedia Editing

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ABSTRACT

This paper presents a preliminary study into the awarding of barnstars among Wikipedia editors to better understand their motivations in contributing to Wikipedia articles. We crawled the talk pages of all active Wikipedia editors and retrieved 21,299 barnstars that were awarded among 14,074 editors. In particular, we found that editors do not award and receive barnstars in equal (or similar) quantities. Also, editors were more active in editing articles before awarding or receiving barnstars.

Categories and Subject Descriptors

H.5.3 [**Group and Organization Interfaces**]: Computer-supported cooperative work

General Terms

Measurement

Keywords

Wikipedia, Editing Behaviour, Barnstars, Incentives

1. INTRODUCTION

Wikipedia is a popular, open-source encyclopedia where volunteer editors contribute to the writing of articles as a collaborative effort. Despite being an open-source encyclopedia, the accuracy of Wikipedia articles was determined to be comparable to that of Britannica [2]. There has been extensive research on Wikipedia with many focused on detecting fraudulent article edits [1], while others have focused on the specific roles of editors in Wikipedia and the effect of barnstars on these roles [3]. There are different types of barnstars in Wikipedia and each barnstar is awarded for a specific contribution (e.g. anti-vandalism, copy-editing, etc). Barnstars serve as an informal reward system where editors award barnstars to other editors in recognition of their contributions to Wikipedia.

Given the important role played by these volunteer editors, we hope to better understand their motivations by studying the effects of barnstars (as an incentive) on editing behaviour. In this preliminary study, we crawled the talk pages of all active Wikipedia editors and obtained all barnstars that were awarded or received by these editors. Thereafter, we studied the effects of awarding/receiving barnstars and the influence of barnstars on editing activities. Our initial hypothesis is that editors are more active in editing prior to receiving a barnstar because this active editing subsequently catches the attention of other editors, who are then more likely to reward them with barnstars.

2. DATASET AND METHODS

Our dataset comprises 21,299 barnstars that were awarded or received among 14,074 different editors. This dataset was collected from May to Jun 2012 and their details include the awarder, receiver, type of barnstar, and time/date when the barnstar was awarded.

Out of the full population of 16.8 million editors (as of Jun 2012), only 0.8 million editors have edited one or more Wikipedia page. As barnstars are awarded by an editor writing on the talk page of another editor (a page edit activity), only these 0.8 million editors could have awarded a barnstar. Furthermore, barnstars are awarded to editors as a form of recognition of their editing activities. Hence, editors who have not edited a single page will not receive any barnstars (since they did not contribute to editing activities). Therefore, we restricted our study on these 0.8 million editors.

We used the Wikipedia article page on barnstars to build our library of 160 different types (names) of barnstars. Thereafter, we analyzed the current talk pages of the 0.8 million editors to determine if they have received a barnstar based on a match with one in our library. Once a match is found, we also retrieved the username of the awarder and receiver, and the time/date that the barnstar was awarded. In total, we retrieved 21,299 barnstars which were awarded or received by 14,074 different editors (out of the full population of 16.8 million editors).

Following which, we used the MediaWiki API[1] to retrieve the number of article/page edits performed by an editor both before and after he/she has awarded or received a barnstar. In particular, we retrieved the number of edits performed by an editor 1, 2, 4, 8, 16, 32, 64, 128 days before and after this editor has awarded or received a barnstar.

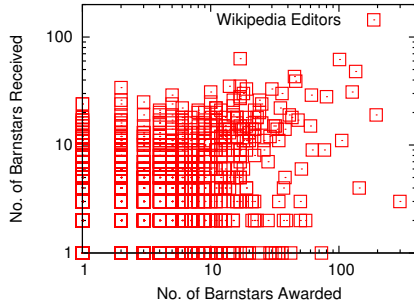---

[1]http://en.wikipedia.org/w/api.php

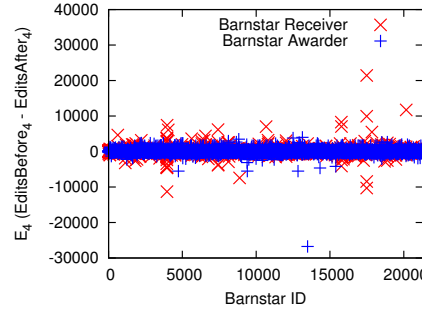Figure 1: Barnstars Awarded and Received among Editors

Figure 2: Barnstars and Editing for the E_4 values
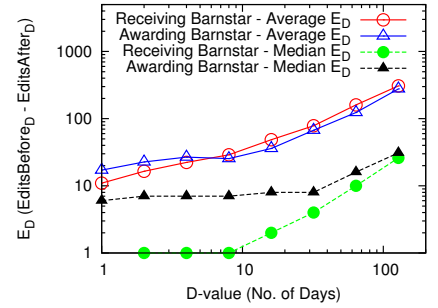

Figure 3: Barnstars Before and After a Page Edit

3. EXPERIMENTS AND RESULTS

Our first study aims to determine if there is a correlation between the number of barnstars awarded (by an editor) against those received, as shown in Fig. 1. The results show no such correlation thus indicating that editors do not award similar number of barnstars compared to the number of barnstars they receive. As future work, we intend to further study the influencing factors of reciprocity in the awarding of barnstars.

As we are also interested in measuring the influence of barnstars on editing behaviour, we introduce a metric $E_D = EditsBefore_D - EditsAfter_D$ where $EditsBefore_D$ and $EditsAfter_D$ respectively represents the number of page edits D days before and after an editor awards/receives a barnstar. Thus, a positive E_D indicates that the editor was more active in page editing before awarding/receiving a barnstar while a negative value indicates the opposite.

We first examine the individual E_D values for $D = \{1, 2, 4, 8, 16, 32, 64, 128\}$ of each barnstar awarded or received by an editor. Fig. 2 shows an example for the scatterplot of E_4 values. From these results, we observed that most editors perform a small number of edits (less than 1,000) before awarding or receiving a barnstar. However, there exists outliers in the form of editors who edit excessively (more than a thousand edits over the same period). The scatterplot for other E_D values display a similar result.

While a number of these outliers are attributed to Wikipedia bots (programs that perform various editing functions), there are also human editors among these outliers. Human editors are identified based on their usernames which do not contain the "bot" postfix and are not in the list of Wikipedia bots.[2] A future work would involve a more in-depth study into these outliers (the human editors), specifically analyzing the extend of their page edits and their social links with other editors.

Next, we plotted the average and median values of all E_D for $D = \{1, 2, 4, 8, 16, 32, 64, 128\}$ for the editors who have awarded or received barnstars, as shown in Fig. 3. At first glance, we observe that all E_D values (for awarding/receiving barnstars) are positive for all values of D. This result indicates that editors tend to perform more page edits before awarding or receiving a barnstar. Due to the influence of outliers (both bots and human editors) on the average E_D values, we now focus on the median E_D values. On a short term basis (32 days or less), the median E_D values show

that editors tend to be more active in editing a page before awarding barnstars. However, this trend (of more pages edits before awarding barnstars) converges with the number of page edits before receiving barnstars on a longer term basis (64 days or more).

4. DISCUSSION AND CONCLUSION

In this preliminary study, we showed that Wikipedia editors do not award and receive barnstars in equal (or similar) quantities. In most cases, editors tend to be more active in editing pages before awarding or receiving barnstars and there exists outliers who edit pages extensively. In addition to editing activity, a more comprehensive study could also consider other factors (such as communication among editors, prior collaborations, etc) that can possibly influence the awarding of barnstars.

Based on these preliminary results, we intend to further study the social/interaction links among editors and how these links influence editing behaviour (i.e. are well-connected editors more active in editing articles and do they have more influence over other editors?). Another possible future work is to study the factors that influence reciprocity in the awarding of barnstars among editors.

5. ACKNOWLEDGMENTS

6. REFERENCES

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