

# Recruiting and Retaining Newcomers Using Online Bots

## INTRODUCTION

A main challenge faced by large scale collaborative projects is recruiting newcomers and retaining them [6]. The retention of newcomers is important because they impact the project's lifespan [2]. Newcomers can also expand the coverage of a project, importing novel perspectives. However, maintaining newcomers is difficult. Wikipedia's volunteer workforce e.g., has been steadily decreasing since 2007 [5].

Several platforms and workflows have attempted to tackle this problem [1, 2, 3]. Some platforms have adopted marketing schemes to motivate new people to join. However, the recruitment is usually not followed by any mechanism to engage the newcomers. As a result, the new individuals leave after a short period. Other approaches have focused precisely on work flows that seek to include and hold newcomers within the collaborative project. Some platforms have sandboxes where newcomers can make safe contributions, and learn about the community with experienced volunteers [3]. Through the sandboxes newcomers slowly become integrated into the community. However, the approach requires experienced volunteers to invest a great amount of time providing assistance. This can limit and affect their own contributions. Other approaches have engaged newcomers with simple lightweight feedback processes [1], showcasing how newcomers can be retained while not imposing a large burden on other volunteers. For instance, Halfaker et al. [2] studied how via peripheral interfaces newcomers could start helping a project by simply identifying when something in the project was incorrect. More experienced volunteers could then inspect and provide relevant revisions.

These approaches showcase how newcomers can be retained while not imposing a large burden on others. However, note that all of these approaches also operate only with the set of newcomers already present on the site. This can limit the type of people who initially decide to take part, and influence the amount and type of people the platform retains.

To help retain volunteers for large scale collaborative projects, such as Wikipedia, we present RoboWiki, a platform that leverages online bots, to actively recruit new volunteers and then retains them via lightweight socialization processes. We speculate that by involving external people who publicly show a great interest or passion related to the project, we will be able to recruit them longer term than average new editors. We focus in particular on retaining newcomers for



Figure 1. Insert a caption below each figure. Do not alter the Caption style.

Wikipedia. We consider we can use Twitter to identify people with potential interest in editing a given Wikipedia article. Our system works as follows: An editor first presents the Wikipedia article for which she wants new volunteers, as well as the list of keywords that define the article. Secondly, the platform identifies people who appear to have an interest in the topic of the article based on simple keyword matching with their latest Tweets. The platform then sends out bots to invite these people to edit and improve the Wikipedia article. If the person accepts, the same bot within Wikipedia provides a lightweight socialization process to help retain the new volunteers. We base the socialization process on MoodBar [1]: newcomers are requested for lightweight feedback about their editing experience. Experienced volunteers can see the feedback and provide guidance if needed.

To understand the benefits and limitations of platforms which use automated social agents to recruit and retain new volunteers, we designed and conducted experiments on Twitter. We deployed our platform publicly on Twitter, where our bots invited people to help edit Wikipedia articles. The bots recruited two different groups of individuals: people whose latest tweets showcased a potential interest for the Wikipedia article; and a set of randomly selected Twitter users (control group). XX volunteers responded to RoboWiki calls to edit; and YYY volunteers actually started editing the articles. These volunteers made XXX contributions (XXXX tweets, XX favorites and retweets, edited XXX articles with XXX words). We found that the people with a potential interest in the article had more discussions on Twitter with RoboWiki, edited more articles; and remained longer on Wikipedia than the people without the previous interest (average XX months in comparison to XX days by control group). The people who were recruited by bots edited also a larger number of articles than the people who arrived to Wikipedia on their own. However, they also suffered initially more frustration editing (as expressed by their moodBar responses).

Together our results showcase how volunteers can be retained longer term by recruiting people who publically express an interest in the topic, and using socialization methods to guide their contributions and retain them longer term.

## References and Citations

## REFERENCES

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