Experiment

In order to investigate the effects of gamification on forming habits, we implemented a web app that allows users to journal. Because of lack of time and resources we will limit our research to the formation of the journaling habit.

The application

Our application will be web based and will present a user-friendly text editor. This text editor serves as a journal interface for the user. The text editor will have a series of functionalities like writing bold text, underlining text, highlighting and others. The role of these elements is to create a comfortable user experience to our participants and to give them the possibility to personalize their journal, so the application resembles a physical journal as much as possible. The user has to first log in our web app. At that moment his writing session begins. Afterwards, he starts writing his thoughts in the text editor. When he is done with his current session, he will press a button in order to end the writing session. The logging in and terminating the session will give us important insight about the way our users interact with the application. These two functionalities already add some effort to using our application(compared to the act of writing in a physical journal). To minimize this effort, we will not have a register functionality, the users will be given already existing accounts.

The game elements

As an addition to our application, we will use a set of game elements to introduce gamification to the app. We will use a progress bar that will fill in as the user spends more time in front of the application.

The progress bar will fill in multiple times during the experiment and each time it will take gradually longer to do so. We will also introduce another game element, achievements. After each progress bar filled we will award the user a badge that serves as an achievement. The awarded badges will be permanently visible to the user above the text editor.

We will also use unlockable features as a game design element. The unlockable feature will be a color for the text. Another color will be unlocked every time the user fills a progress bar.

We choose to base our game elements around time instead of character number because we find it to be a better indicator of how much a participant uses our app. This is because the journaling habit itself is based on the time spent in front of a journal rather than how much you write in it.

We mainly opted for progress bars, badges and unlockable features because they fit well with the journaling application. They not only fit well in terms of functionality, but they frequently remind the user of his progress, which might create the sensation that progress in the app is important. Through this mechanism we hope to create some level of intrinsic motivation. Intrinsic motivation is an important factor because it will not disappear when the game elements are no longer used, and as such there is a bigger chance we create a long-term habit.

The population

We will separate our participants in two groups. The first group will be a set of X people that confirmed they want to form a journaling habit. This group will be comprised of A men and B women of different age groups ( C females between 21-30, D males between 21-30, E females between 31-40, F males between 31-40, G females between 41-50, H males between 41-50 ). The second set of Y people confirmed that they didn’t necessarily want to start journaling, but they are not against it either. This group will be comprised of A men and B women of different age groups ( C females between 21-30, D males between 21-30, E females between 31-40, F males between 31-40, G females between 41-50, H males between 41-50 ).

Periods

We will split our experiment in 3 different periods which will take a total of 56 days. The first period will serve as our control phase. In this phase the participants will be given the application with no gamification applied. This phase will take 7 days. Our next phase will be our gamification phase. In this phase we will add the game elements to our application. This phase will take 14 days. The third phase will be called the “post-gamification” phase. Gamification elements will be taken out but the application will still be usable and we will continue to collect data of our users behaviors for the next 35 days. This third phase will be split in 2 shorter phases, the first 14 days will be called “early post-gamification” phase, and the last 21 days will be called “late post-gamification” phase.

This experiment is trying to find the benefits of gamification on long-term habit formation, so as long of an experiment as possible is needed. With the time and effort we currently possess, 56 days is the maximum we can achieve.

Metrics

We will consider 3 metrics for analyzing the result of our experiment: frequency of writing, average time spent in front of the journal per day, quantity of writing. Frequency of writing will be calculated as days of using the application at least once (at least one session). Average time spent in front of the journal per day will take into consideration the length of each writing session, assuming that the participants use the application for the entire writing session (this will be communicated to them before starting the experiment). Quantity of writing will be calculated as the absolute number of characters written.

Other interesting metrics would be the average length of a writing session, the average number of sessions per day, the average quantity of writing per session and so on and so forth. We will not discuss these in the scope of our experiment because they are not correlated to habit forming through gamification, but they might yield interesting results in other articles (analyzing journaling patters for example).

Frequency of writing and average time spent in front of the journal per day are the main metrics, because they are the most related to habit forming. Quantity of writing is not as important, but it will help us understand the effect of our game elements better.

Results

We will compare the data between all three of our phases.

Control phase – Gamification phase

The overall tendency of our data here will show the effects of adding the gamification to our app. If our metrics go up we can conclude that our game elements are pushing the participants towards using the journal more. If we see no difference between the two phases we can either conclude that gamification did not make a difference, or that gamification kept the participants using the app but it did not increase the use of it. If our metrics suddenly go down we can conclude that the addition of game elements had a negative impact on the will of the participants to use the app. Another scenario that would yield an interesting result is the possibility that frequency of writing and average time spent in front of the journal per day go up, but the quantity of writing goes down. This would show that the users wanted to get the rewards from the gamified system without actually using the journal more. If such a phenomenon occurs we could conclude that the use of gamification yielded extrinsic motivation only and that there is a decoupling between the gamification and the app functionality.

Gamification phase – Post-gamification phase

What we want to see here is what effect the removal of game elements will have on the way our participants use the app. If our metrics go down we can assume that the game elements are not effective in forming long term habits, but they are effective in increasing the use of an application while present. If our metrics go up or stay relatively the same after the removal, we would assume that the game elements did a good job in forming the habit.

Control phase – Post-gamification phase

This is the most important comparison to make in our experiment. What we hope to see is an increase in the metrics in the post-gamification phase. This would result in gamification being effective in forming habits. Another interesting possible result would be to see an overall decrease in the metrics, which would show that game elements are actually detrimental to forming a habit.