USE-HIT Projects 2015-2016 Research Project Report

Using trailers in choice-based recommender system for movie preferences

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Introduction

Recommender systems are used for many purposes, such as making people aware of what movies, books or television series they might like. In our research, we will concentrate on movie recommender systems. A lot of recommender systems base their suggestions on ratings that users have already given, to get an impression of what that particular user likes[citation]. Unfortunately, rating movies is a tedious task for the user. Furthermore, it is not really possible for people to rate movies on an absolute scale, because people preferences are always relative. Another way to find out about the preferences of the user is using a choice based recommender system[citation]. This system shows the user a set of movies, from which he will choose the one that he would like to watch the most. Based on this choice, a new set of movies is generated by the system that is closer to the previously chosen movie. This process repeats itself a number of times, until a final set of movies is given to the user as a recommendation. This is an easier task to perform for the user, because he has to choose instead of rate movies.
However, a big problem with this type of recommendation system is that the user is not likely to know a lot of the presented movies. He will be biased to choose a movie that he knows, and this will often be a popular movie. Choosing mainly popular movies will cause the system to recommend even more popular movies to the user. We are wondering if it is also possible that people will like recommendations with less popular movies, because we think that those recommendations are more surprising.
A solution might be to provide the user with information about the movies, so that he can make a more informed choice and will hopefully choose less popular movies, which will lead to more surprising recommendations. This information can be in the form of a short description, some photos or a trailer.

Research Question

It is known that people are satisfied with popular movies and as a consequence that popular movies will become even more popular. We are wondering if we can give more surprising movies which means that less popular are recommended. But, how can we make people choose for less popular movies and will they still be satisfied with the recommendation?
We would like to know if we can change this behavior by adding more information and trailers to the system. We think that if more information and trailers are available, people will get a better impression of the movie even if they have never seen it before. Therefore, we think that people might choose for these movies. So, our research question is: Is adding more information and trailers going to help to assess less popular movies and will that result in recommendations that are less strong in popularity, but still satisfying?

Hypotheses

For the hypothesis, we want to measure both behavior and perception. This means that we want to know if people look at the trailers when the movies are less popular, if the final set of recommendations is surprising and if they are satisfied with it. To see what relations we think are visible between different aspects, we made a hypothesis chart (figure 1).

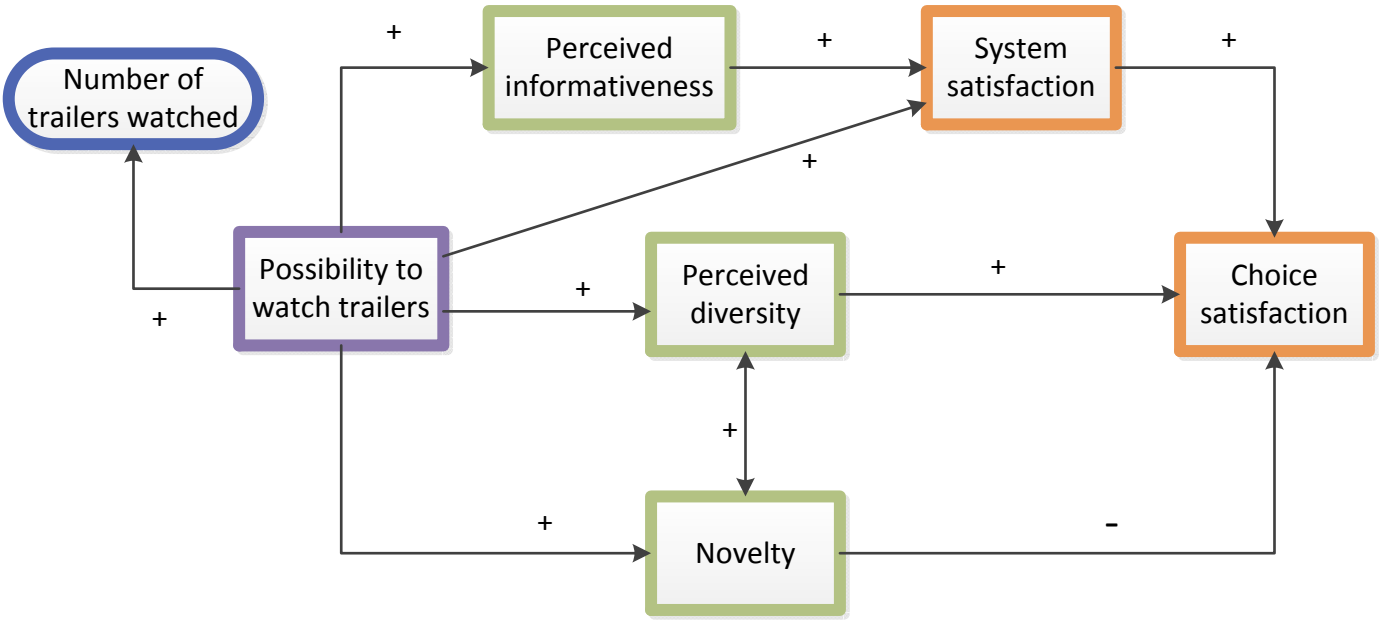

Figure 1. Hypothesis chart

The plus means that a positive relation is present, while a minus means that a negative relation is present. Since we think that a positive relation is present between watching trailers and novelty, diversity, perceived informativeness and system satisfaction, we therefore expect also a positive choice satisfaction. Every relation that is visible is actually a hypothesis. The main hypothesis is: if trailers are available when less popular movies are in the set of movies you have to choose from, you will be satisfied with the recommendation.

Method

Participants and design

To test our hypotheses, about a hundred people participate in our research. These people are mostly students from the TU/e, as they are the easiest to reach. However, it has to be considered that this group consists of people with a small range of age, and with a relatively similar familiarity with the use of technology. The recommender system is entirely implemented in an interactive website, and therefore the study probably gives different results for people that are not very frequent users of this kind of technology. This however is not being tested, and consequently the conclusions that are drawn from this study cannot simply be applied to every user.
The recommender system is choice-based, which means that the system learns about the user's preferences by repeatedly asking them to choose the movie they would like to watch the most from a set of ten movies. The participant will base this choice on his own knowledge, as well as on the information about the movies that is provided by the system. This is what is manipulated; the participants either get the opportunity to watch a trailer or not. Every participant is assigned one of these conditions randomly.

Materials

To build the website, … (programs) are used. The data is collected in the … database.
To analyse the data, … (programs) are used.

Procedure

The recommender system presents the participants with a set of ten movies, from which they choose the movie that they would like to watch the most. This process repeats itself another nine times. Hereafter the participants are presented with a final set of ten recommended movies. From this set, they choose the movie they like best, and this is their final recommendation.
After using the recommender system, the participants get a questionnaire where they judge a list of statements about the recommendations and the system itself on how much they agree or disagree with them.
This questionnaire contains statements concerning the following topics:

The recommender system
Perceived informativeness: how the participant perceives the amount of information given, as well as in what form the information is presented and whether this is satisfying.
Perceived diversity: whether the participant perceives the final set of recommended movies as diverse or not.
Novelty: whether the participant thinks the system recommends a lot of surprising and unfamiliar movies.
System satisfaction: whether the participant perceived the system as satisfying or not.
The final recommendation
Choice satisfaction: whether the participant likes his final choice or not.

Furthermore, the number of watched trailers is recorded.
The measurements of these five concepts (perceived informativeness, perceived diversity, novelty, system satisfaction and choice satisfactions), are used to test the hypotheses.