

# Adaptive Feedback in Web Systems

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One of the main processes in the adaptive web systems is the communication between the system and its users. User evaluates the presented information, whether it was useful or helpful. Based on this information, the adaptive system provides recommendations of other content useful for the user. The processes of feedback collection and result presentation used in the adaptive methods could also be adaptive themselves.

Users are often not willing to rate the learning object which they use. They provide ratings especially if they are motivated [1], or alternatively if they are very satisfied or very unsatisfied [2]. There is also another problem that the act of rating of an object may disturb the user during her interaction with the object.

In our research we combine implicit and explicit feedback to increase quantity and quality of ratings in an educational web system. We aim at difficulty ratings of learning objects. We monitor user behaviour by the means of implicit feedback during question/exercise solving. We monitor mouse cursor movements and keyboard actions.

We collect learning object ratings with explicit feedback. We use a difficulty scale with six values for this purpose.

We detect four situations (see Figure 1) of appearance explicit feedback:

1. The user has finished working with the learning object – she has solved the problem and submitted a solution.
2. The user tries to solve the problem but loses interest in the exercise. E.g., she starts to scan the sidebar widgets.
3. The user does not know the correct answer and asks for a hint. The system then shows a request for learning object rating. This request also appears when she finally solves the problem.
4. The user starts solving the exercise, but after some time we do not detect any user activity. In order to check for user's presence, we ask her to rate the learning object.

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We calculate the user inactivity time as average time needed to solve the exercise.

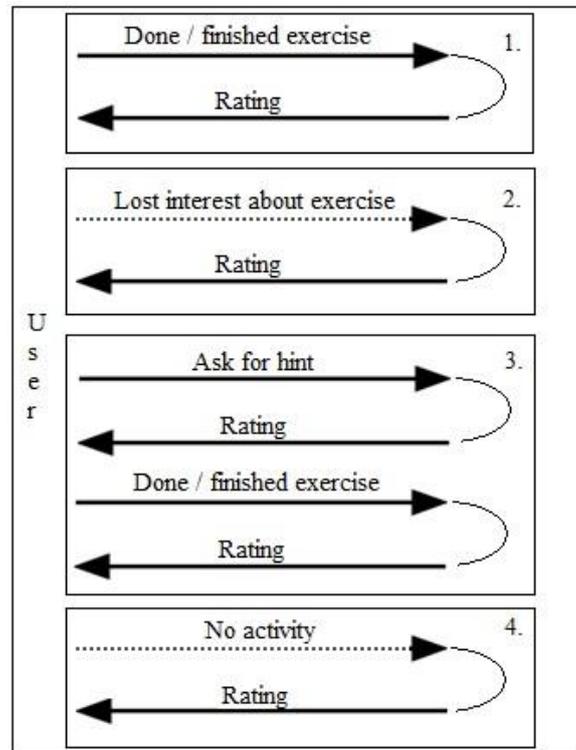


Figure 1. User interaction with system

The proposed method will be evaluated in the ALEF educational system (Adaptive Learning Framework) [3]. The collected feedback can be used to recommend most appropriate learning objects.

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## References

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