

Implicit Feedback-based Estimation of Student's Knowledge



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Motivation:

- A number of adaptive educational systems
- Adapt the content automatically
- Monitoring student activities: the clicking on the recommended link, the time spent on the web page, adding the tags, adding a page to bookmarks but also based on leaving the page
- Elaborating a variety of exercises and questions

Our Research:

- The knowledge of student on the basis of monitoring his activities
- The active time spent on learning objects
- The similarity of the learning objects
- The student's knowledge -> the evaluation of this time in relation to the learning objects characteristics.

Learning Objects:

- Understandability, the readability index

$$ARI = 4.7 * \frac{chars(d_i)}{words(d_i)} + 0.5 * \frac{words(d_i)}{sent(d_i)} - 21,43$$

$$LIX = \frac{words(d_i)}{sent(d_i)} + 100 * \frac{longWords(d_i)}{words(d_i)} - 21,43$$

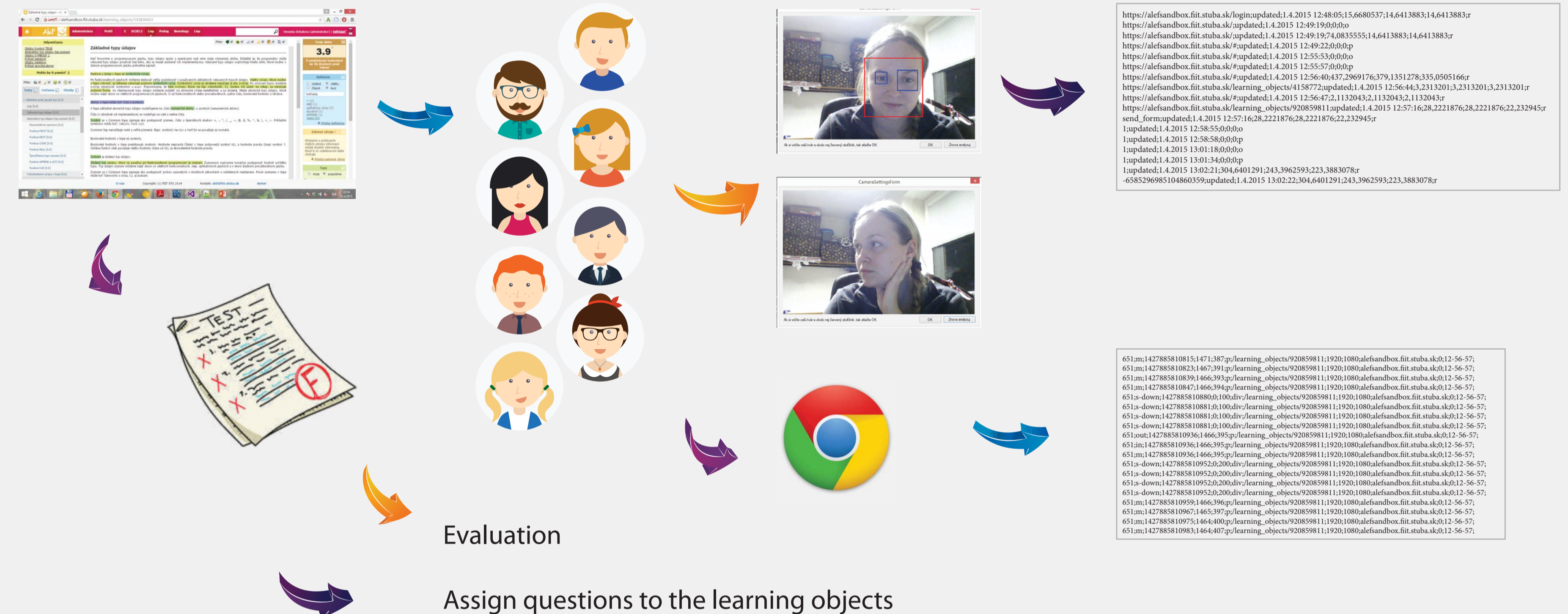
- Concepts connected with the given learning object
- The average time of all students spent working with a learning object

Evaluation:

ID	01	02	03	04	05	06	07	08	09	10	11	12
1264	T	F (+ 1/3)	F (7 z 9)	F	N	T	N	N	T	F	F	N
1288	F	N	F (4 z 9)	N	N	N	N	N	N	N	N	N
1260	T	F (+ 1/3)	T	T	T	T	F	N	T	T	F	F
1272	F	F	F (5 z 9)	N	N	T	N	T	T	F	F	N
1279	F	F (- 1/2)	F (7 z 9)	N	N	T	N	F	N	N	N	N
1262	N	N	N	N	N	T	N	N	N	N	N	N
1270	T	F	N	N	N	N	N	N	N	F	N	N
1277	F	T	F (6 z 9)	N	N	N	N	N	N	N	N	N
1261	N	N	N	N	N	N	N	N	N	N	N	N
651	N	T	N	N	N	T	N	N	T	F	F	N
1263	T	F (- 1/2)	N	N	N	N	N	N	N	N	N	N
1259	N	F (- 1/2)	N	N	N	N	N	N	N	F	N	N
1269	T	F (+ 1/3)	F (8 z 9)	N	N	T	N	F	F	T	T	N
1289	F	F	F (8 z 9)	F	N	T	N	N	N	F	F	N
1271	T	F (- 1/2)	F (3 z 9)	F	N	T	N	N	F	F	N	N
1287	N	N	N	N	N	T	N	N	N	N	N	N
1286	T	T	N	N	N	T	N	N	N	N	N	N

Student Activity:

- The display time of the learning object
- The reading time of the learning object
- The mouse clicks, movements and scrolls



Architecture:

