Users' Image Seeking Behaviour in Multilingual Environments: experience in combining qualitative & quantitative data

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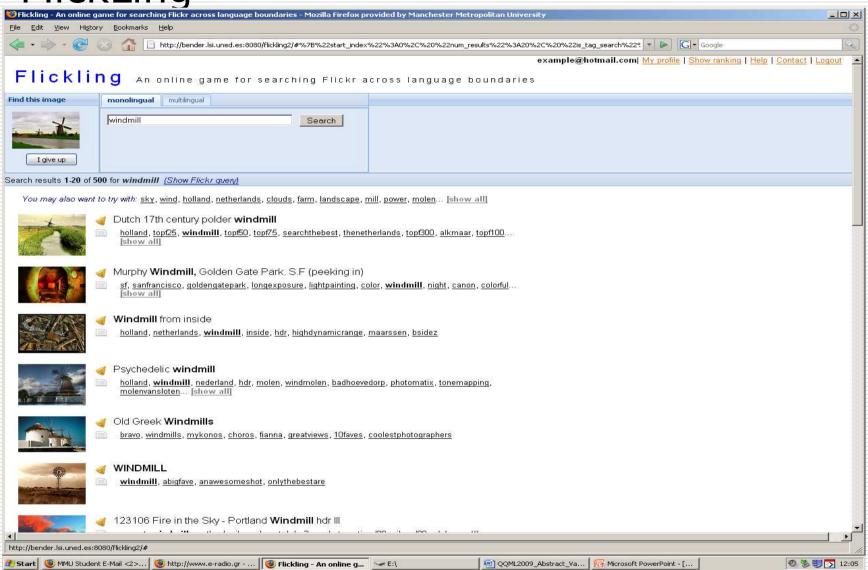
Definitions

- Cross-Language Information Retrieval (CLIR)
- Multilingual Information Retrieval (MLIR)

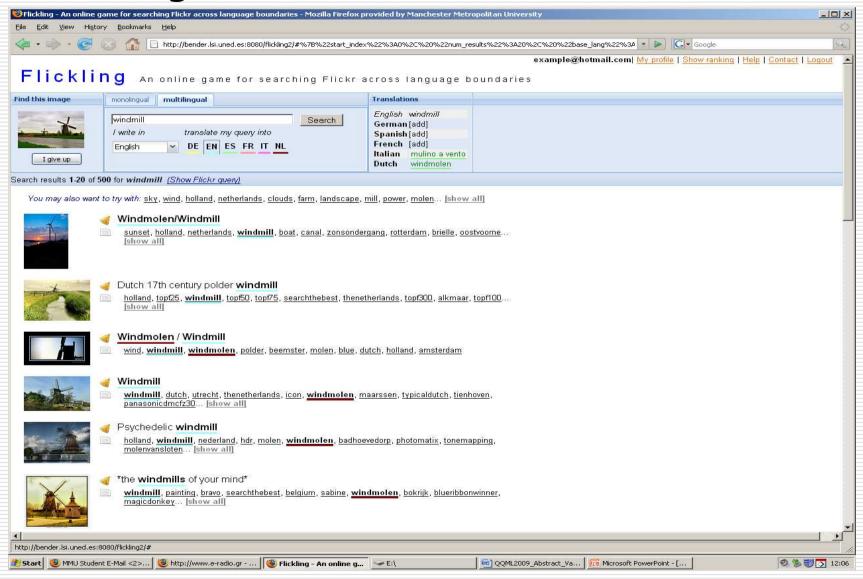
Study's Outline

- Test Object: FlickLing developed by CLEF organizers
- Task: search for the three known, nonannotated images
- Users
- Experimental Procedure

FlickLing



FlickLing



Findings

- Six out of ten users employed typical IR search strategies
 - identify the setting of the image
 - extract the right keywords
- Four out of ten users recognized the importance of language when searching in a multilingual environment.
 - identify the language by paying attention to small details, such as a piece of writing, the colour usage, and the pictured landmark.

<u>Reference</u>

Vassilakaki, E., Johnson, F., Hartley, R. and Randall, D. (2008). A Study of Users' Image Seeking Behaviour in Flickling. In Peters et al (eds): Evaluating Systems for Multilingual and Multimodal Information Access 9th Workshop of the Cross-Language Evaluation Forum, CLEF 2008, Aarhus, Denmark, September 17-19, 2008, Revised Selected Papers, Springer LNCS.

Mixed Methods Research

- The use of different methods to collect data and to answer research questions.
- □ Tashakkori and Teddi (2003)
 - mixed methods research can answer research questions that the other methodologies cannot
 - mixed methods research provides better (stronger) inferences
 - mixed methods provide the opportunity for presenting a greater diversity of divergent views.

Mixed Methods Research

Ways of combining qualitative & quantitative methods

- Triangulation or greater validity
- Offset
- Completeness
- Process
- Different research questions
- Explanation
 - Unexpected results
 - Instrument development
- Sampling

- Credibility
- Context
- Illustration
- Utility or improving the usefulness of findings
- Confirm and discover
- Diversity of views
- Enhancement or building upon quantitative/ qualitative findings
- Other/ unclear

Mixed Methods Research

- Offset & Completeness
- Quantitative: Questionnaire & Qualitative: Observation, Retrospective Thinking Aloud, Interviews
- They extract different data (quantitative/ qualitative)
- They overlap ensuring that no relevant data will be lost
- They enable the collection of both concrete and difficult to misinterpret data.

Questionnaire

- to gather information about the user sample
- to enable the formulation of questions to be asked during interviews regarding users' search behaviour and habits adopted in the specific study

Questionnaire

Pros

- Definition of the user sample characteristics and users' previous experience in each of the sections of interest.
- Short in length, concrete and easy to fill in as possible
 - to minimize the hassle to which users had to go through in completing it
 - to relieve the overload from carrying out the whole experiment (employment of four different methods)
 - to constrain the time spent on full-filing the various elements of the study.

Cons

- Not all users answered all questions
- Users withhold some information or provided contradictory data

Observation

- to form an overview of the users' information seeking behaviour while performing the given task
- to form the necessary questions during the interviews based on the observations made

Observation

Pros

- Focus on specific areas, write comments, remarks and relevant questions for each user.
- Engage users in conversation asking him/her to explain why the user made that comment.

Cons

- The facilitator could miss the overall user interaction because he/she was focusing on specific elements of users' behaviour.
- Meaningless data or easily misinterpreted without users' further comments and justifications of these actions.
- The users may have altered their search behaviour because they were observed

Retrospective Thinking Aloud

- To derive findings entirely on users' thoughts, comments and search behaviours.

Retrospective Thinking Aloud

Pros

- beneficial for the non-English native speakers since they could search thinking in their own language
- they could elaborate more and explain better their actions
- gain insights on users' information seeking behaviours,
- identifying the reasons why users were behaving in this way
- asking relevant questions during interviews

Cons

- Time consuming as a process
- The users were feeling tired

Interview

- to clarify the answers provided in the questionnaires
- to clarify the specific actions of the user's image seeking behaviour during the search session
- to clarify the users' expressions during retrospective thinking aloud

Interview

Pros

- Verification of specific sayings of the users during retrospective thinking aloud and of the users' answers in the questionnaire.
- Interpretation of the data gathered through observation, as users were asked to provide explanations on specific actions noted on the observation sheet.

Cons

 Short in length interviews because users were already tired and they were not willing to spend a long time on answering additional questions.

Discussion

- Offset way of combining research methods
 - Questionnaire :
 - + define users' characteristics
 - provide hints on users' search behaviour
 - Observation
 - + identification of specific search behaviours and actions
 - meaningless data without the users' explanations
 - Retrospective thinking aloud
 - + collection of data entirely on users' explanations of their actions
 - exhausting process for the users
 - Interviews
 - + verify further users' answers in the questionnaire and specific actions noted during observation and clarify users' expressions during retrospective thinking aloud.
 - short in length

Discussion

Notion of **Completeness**

- Enabled the generation and gathering of diverse data on different aspects of the same research area
- Specific order in which the four methods have been applied. It provided the facilitator with the possibility of gradually accumulating data on users' search behaviour.

Conclusion

- The investigation and monitoring of users' interaction and search behaviour with multilingual environments is considered to be one of the most important factors in developing efficient and effective CLIR systems.
- The decision on which **methods** to employ in order to gain a better insight to users' behaviours and thoughts is also **essential**
- The offset and completeness way of combining the chosen methods have been adopted in order to enable the better and a more comprehensive understanding of users' image seeking behaviour in multilingual environments.

Thank you for your attention!