Extending search facilities via bibliometric-enhanced stratagems

Bibliometric-enhaced Information Retrieval (ECIR 2015)
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Interactive Information Retrieval

- IR changing from a system-oriented to user-oriented perspective

- Gain insights into the way users perform searches

- Models for understanding information searching and seeking

- Bates search activity model [1]

Search activities (Bates)

- Move
- Tactic
- Stratagem
- Strategy

Search activities (Bates)

- **Move**
- Tactic
- Stratagem
- Strategy

- Simple search activity:
- Enter query term
- Select document

Search activities (Bates)

- Move
- **Tactic**
- Stratagem
- Strategy

- Combination of many moves
- Select broader / narrow term
- Breaking complex query terms into subproblems

Search activities (Bates)

- Move
- Tactic
- **Stratagem**
- Strategy

- "Complex of moves and tactics involving a **particular search domain** identified to be **productive** and a mode to tackle a **particular file organization** of that domain." [1]
- Examples for Stratagems:
  - Journal run
  - Citation search

Search activities (Bates)

- Move
- Tactic
- Stratagem
- **Strategy**

- Combination of many moves, tactics and stratagems
- Support the entire information search. Example: looking for related work in a research area
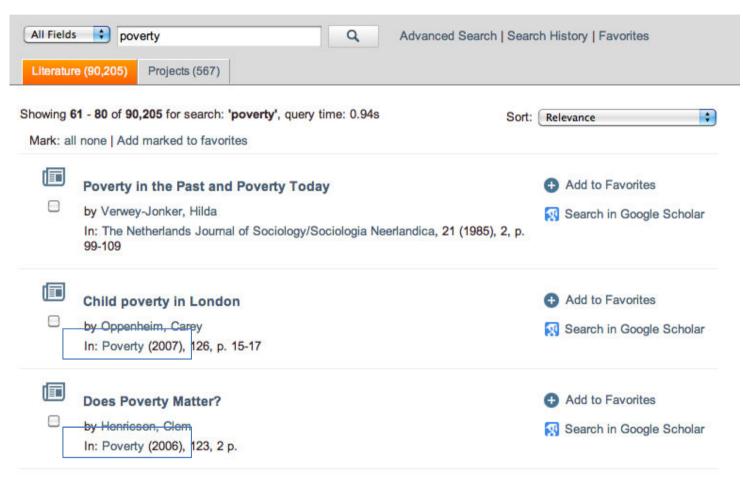- Difficult to implement. First implementation in academic environment [3]

Use case: Sowiport.de

- Sowiport is a digital library for the social sciences
- About 8 mio. records
  - Links to full text
  - Bibliographic metadata (authors, year, journal, etc.)
  - References
  - Citations
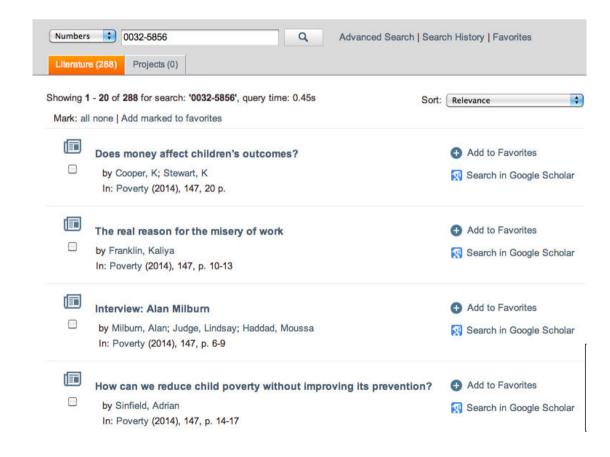- → Does sowiport support stratagems?

Stratagem (Journal Run)

Stratagem (Journal Run)

- Search by Journal ID
- Query "poverty" lost
- Previous top ranked documents ranked lower
  #132 for doc 2
  #221 for doc 3
- Nontransparent ranking
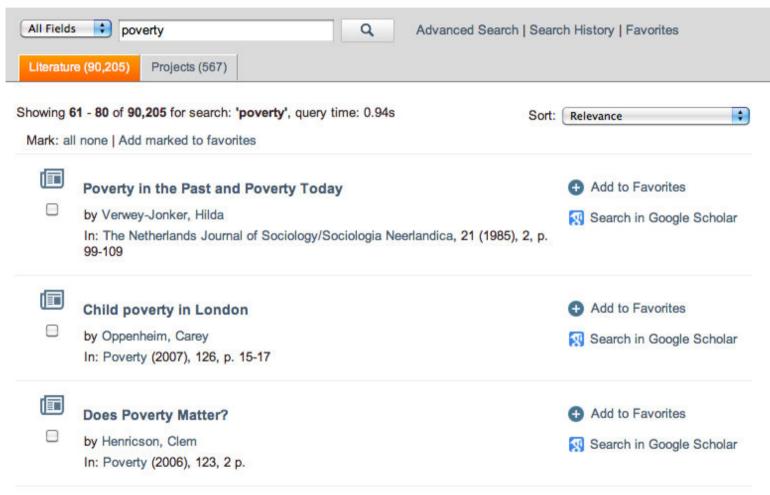- Little structure

Positions

- Missing predefined stratagem to support the user's search process
- Supporting context-preserving and context free move

Facilitate domain specific search activities by applying bibliometric measure for re-ranking and/or rearranging
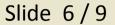
Extended Journal Run

Extended Journal Run
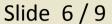
Filter:

Keywords:

Keyword 1

Keyword 2

...

Document Type:

Book

Article

...

poverty · search

Extended Journal Run

Document 1; Author names; Journal A; Publish date

Document 2; Author names; Journal B; Publish date

Document 3; Author names; Journal C; Publish date

Document 4; Author names; Journal B; Publish date

...

Extended Journal Run

Filter:

Keywords:

> Keyword 1
> Keyword 2
>
> ...

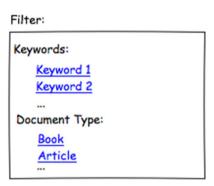Document Type:

> Book
> Article
>
> ...

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poverty

Journal B   Impact Factor: 0.9

> Document 2; Author names; Date; Issue;
> Document 4; Author names; Date; Issue;

More from journal B..

Journal C   Impact Factor: 0.8

> Document 3; Author names; Date; Issue;

More from journal C..

Journal A   Impact Factor: 0.5

> Document 1; Author names; Date; Issue;
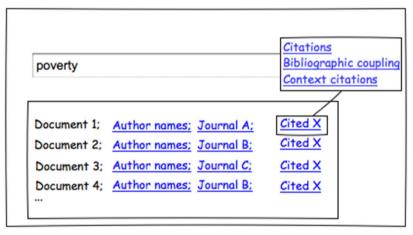
More from journal A..

Citation Analysis

- Simple move showing citations

- Bibliographic coupling

- Context-preserving citation list

Filter:

Keywords:
  Keyword 1
  Keyword 2
  ...
Document Type:
  Book
  Article
  ...

poverty

Citations
Bibliographic coupling
Context citations

Document 1; Author names; Journal A; Cited X
Document 2; Author names; Journal B; Cited X
Document 3; Author names; Journal C; Cited X
Document 4; Author names; Journal B; Cited X
...

Conclusion

- Stratagems are insufficiently supported in digital libraries like sowiport

- Different types of moves should be supported on the interface

- Bibliometrics offer potential to rerank and rearrange the results

Open Questions

- What stratagems could be supported?
- How can stratagems be arranged on the interface?
- Which bibliometric measures can be integrated?
- Evaluation:
  - Log-file
    - Positive follow-up activities
    - A/B testing
  - User evaluation
    - Expert studies
    - Interviews

References

- [1] Bates, M.J.: Where should the person stop and the information search interface start? Information Processing & Management 26(5), 575–591 (Jan 1990)

- [2] Ingwersen, P., Järvelin, K.: The Turn, The Information Retrieval Series, vol. 18. Springer-Verlag, Berlin/Heidelberg (2005)

- [3] Fuhr, N.: Information Retrieval — From Information Access to Contextual Retrieval. In: Designing Information Systems. Festschrift fürr Jürgen Krause, pp. 47–57. UVK Verlagsgesellschaft (2005)