

# Extending search facilities via bibliometric-enhanced stratagems

Bibliometric-enhanced 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 <sup>[1]</sup>

# 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.” <sup>[1]</sup>
  - 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: Sowipor.de

- Sowipor 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 sowipor support stratagems?



# Stratagem (Journal Run)

All Fields

poverty

Q

Advanced Search | Search History | Favorites

Literature (90,205)

Projects (567)

Showing 61 - 80 of 90,205 for search: 'poverty', query time: 0.94s

Sort: Relevance

Mark: all none | Add marked to favorites

Poverty in the Past and Poverty Today

+

 Add to Favorites
 

Search in Google Scholar

by Verwey-Jonker, Hilda

In: The Netherlands Journal of Sociology/Sociologia Neerlandica, 21 (1985), 2, p. 99-109

Child poverty in London

+

 Add to Favorites
 

Search in Google Scholar

by Oppenheim, Carey

In: Poverty (2007), 126, p. 15-17

Does Poverty Matter?

+

 Add to Favorites
 

Search in Google Scholar

by Henriksen, Clem

In: Poverty (2006), 123, 2 p.

# 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

The screenshot displays the GESIS search interface. At the top, there is a search bar with the text 'Numbers' and a dropdown arrow, followed by the input '0032-5856' and a search button. To the right of the search bar are links for 'Advanced Search', 'Search History', and 'Favorites'. Below the search bar, there are two tabs: 'Literature (288)' (highlighted in orange) and 'Projects (0)'. The main content area shows search results for the query '0032-5856', indicating 'Showing 1 - 20 of 288' results with a query time of 0.45s. The results are sorted by 'Relevance'. Each result entry includes a document icon, the title, the author(s), the journal information, and two action buttons: 'Add to Favorites' and 'Search in Google Scholar'.

Title	Author(s)	Journal
Does money affect children's outcomes?	by Cooper, K; Stewart, K	In: Poverty (2014), 147, 20 p.
The real reason for the misery of work	by Franklin, Kaliya	In: Poverty (2014), 147, p. 10-13
Interview: Alan Milburn	by Milburn, Alan; Judge, Lindsay; Haddad, Moussa	In: Poverty (2014), 147, p. 6-9
How can we reduce child poverty without improving its prevention?	by Sinfield, Adrian	In: Poverty (2014), 147, p. 14-17

# 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

All Fields

poverty

Q

[Advanced Search](#) | [Search History](#) | [Favorites](#)

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In: Poverty (2007), 126, p. 15-17

+ Add to Favorites

Search in Google Scholar

Does Poverty Matter?

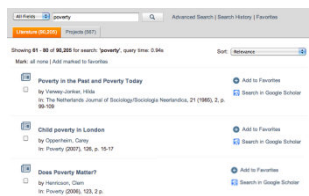
by Henricson, Clem

In: Poverty (2006), 123, 2 p.

+ Add to Favorites

Search in Google Scholar

# 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](#)

...

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;	<a href="#">Author names;</a>	<a href="#">Journal A;</a>	<a href="#">Cited X</a>
Document 2;	<a href="#">Author names;</a>	<a href="#">Journal B;</a>	<a href="#">Cited X</a>
Document 3;	<a href="#">Author names;</a>	<a href="#">Journal C;</a>	<a href="#">Cited X</a>
Document 4;	<a href="#">Author names;</a>	<a href="#">Journal B;</a>	<a href="#">Cited X</a>
...			

# 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 für Jürgen Krause*, pp. 47–57. UVK Verlagsgesellschaft (2005)