How do practitioners, PhD students and postdocs in the social sciences assess topic-specific recommendations?

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Intro

• Typical difficulties in searching digital libraries (DL)
  – Vagueness between search and indexing terms
  – Weak rankings based on term frequency (tf*idf), also others ...

• Assumption I: a user's search (experience) should improve by using recommendation services (Mutschke et al., 2011), esp. in:
  – Vague search tasks
  – Unfamiliar fields
  – Cross domain searches

• Assumption II: scholarly user's search with keywords, author names and journal names and use search tactics (Carevic & Mayr, 2016 to appear)
Recommender Services

IRM project at GESIS (Lüke et al., 2013) has developed

- Search term recommender – STR (co-word analysis/Jaccard index)
- Journal name recommender – JNR (core journals/bradfordizing)
- Author name recommender – ANR (co-authorship analysis/betweenness centrality)

You type a query and get specific recommendations

**core journals**
- Soziale Systeme (105)
- Zeitschrift für Soziologie (56)
- Soziale Welt (30)
- Zeitschrift für Rechtssozioologie (25)

**central authors**
- Luhmann, Niklas
- Luhmann, Hans-Jochen
- Schimank, Uwe
- Tyrell, Hartmann
- Hartmann, Jutta
- Fischedick, Manfred
Case Study

Assessment exercise

• 19 social sciences researchers (seniors, research staff and PhD candidates) assessed topical relevance for STR, JNR and ANR for their research topics/familiar field

• 23 topics have been assessed [e.g. urban sociology, interviewer error, theory of action, atypical employment, ...]

• They assessed 4–5 recommendations for each recommender

• All recommendations were derived from the social sciences database SOLIS
Results I

\[ P = \frac{|r|}{|r + nr|} \]

<table>
<thead>
<tr>
<th></th>
<th>STR</th>
<th>JNR</th>
<th>ANR</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>0.743</td>
<td>0.728</td>
<td>0.749</td>
</tr>
<tr>
<td>AP@1</td>
<td>0.957</td>
<td>0.826</td>
<td>0.957</td>
</tr>
<tr>
<td>AP@2</td>
<td>0.826</td>
<td>0.848</td>
<td>0.864</td>
</tr>
<tr>
<td>AP@4</td>
<td>0.750</td>
<td>0.726</td>
<td>0.750</td>
</tr>
</tbody>
</table>

- >70% of the recommendations are relevant
- Precision of ANR is slightly better than STR and JNR
- Top 1 recommendation of JNR is more often not relevant
## Results II

<table>
<thead>
<tr>
<th></th>
<th>STR</th>
<th>JNR</th>
<th>ANR</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP Practitioners (N=8)</td>
<td>0.727</td>
<td>0.709</td>
<td>0.836</td>
</tr>
<tr>
<td>AP PhD students (N=8)</td>
<td>0.742</td>
<td>0.719</td>
<td>0.737</td>
</tr>
<tr>
<td>AP Postdocs (N=3)</td>
<td>0.750</td>
<td>0.800</td>
<td>0.467</td>
</tr>
</tbody>
</table>

- Practitioners tend to assess **author names** more relevant
- Postdocs tend to assess **journal names** more relevant
Conclusions/Further Questions

• Precision values of recommendations from STR, JNR and ANR are close together on a high level

  Q: Would the result be similar in a real retrieval scenario?

• Practitioners are favoring author name recommendations while postdocs are favoring journal name recommendations

  Q: Are author names typically more distinctive features than journal names?
Outlook

• Integrate different recommender systems in real retrieval tasks (search sessions)
  – Measure task completion rates or goal satisfaction

• Use and evaluate recommenders for query expansion and as dynamic features in IR

• Develop new measures of utility of recommender systems (Hienert & Mutschke, 2016)
References


Thank you

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