Deliberative Diversity for News Recommendations: Operationalization and Experimental User Study

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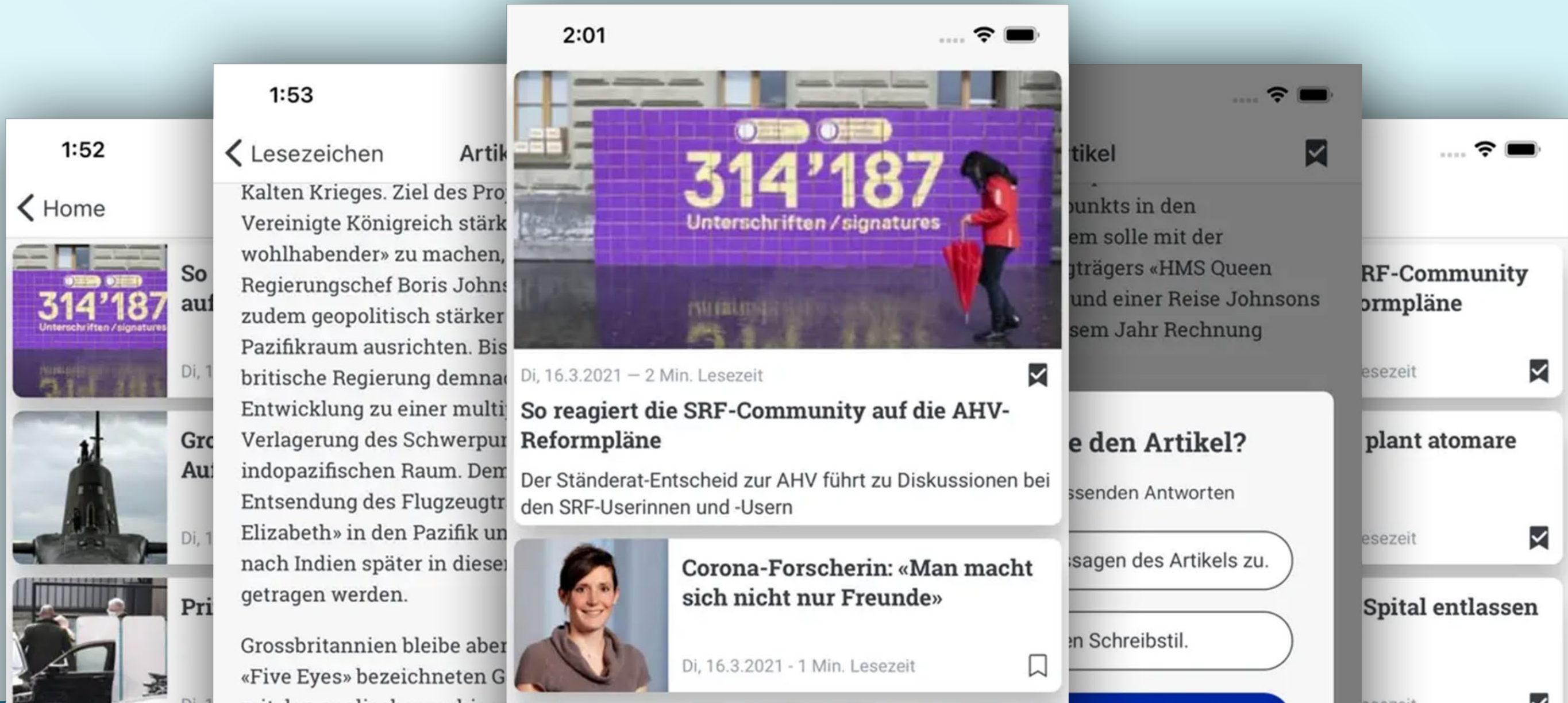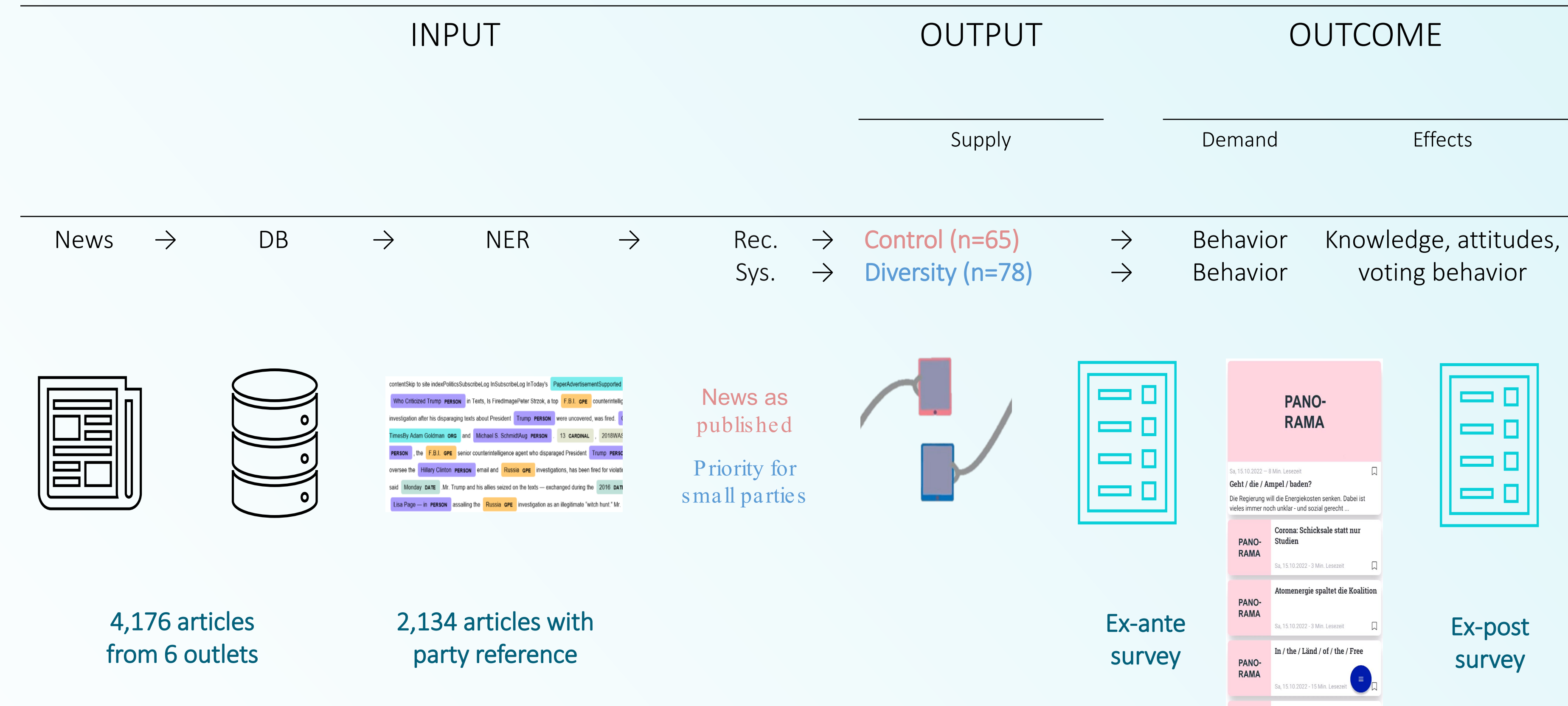
Overview

In this study, we conduct an experiment that operationalizes the model of deliberative diversity (DD), providing news articles from different sources and of perspectives, to focus on party visibility for raising awareness of minority parties. We ask the following research question: <u>How does varying party visibility in news recommendations affect users' party preferences?</u>

Our contributions include:
1. the <u>operationalization</u> of DD as a model for news recommender systems (NRS) for varying party visibility;
2. a user study on the effects and impact of NRSs on <u>political knowledge</u> of participants; and
3. the impact of NRSs on <u>voting behavior</u>.

User Study

INPUT					OUTPUT	OUTCOME	
					Supply	Demand	Effects
News →	DB →	NER →		Rec.	Control (n=65) →	Behavior	Knowledge, attitudes,
				Sys. →	Diversity (n=78) →	Behavior	voting behavior

News as published
Priority for small parties

PANO-RAMA

4,176 articles from 6 outlets

2,134 articles with party reference

Ex-ante survey

Ex-post survey

We conduct a field experiment prior to federal state elections in Lower Saxony, Germany (elections on October 9, 2022). N=143 participants were recruited from a certified online panel to use our custom news app <u>Informfully (www.informfully.ch)</u> during the state election campaigns.

Participants were randomly distributed to the control group (news as published) n=65 or treatment condition n=78 (overexposure for minority parties using our custom recommender algorithm for DD). In an ex-ante survey, participants were asked about their party preferences, governance ability evaluation for each party, and attitudes toward campaign issues per party.

Results

We look at party visibility (articles recommended to users), news demand (articles read by users), political knowledge-ability, and voting behavior between the treatment group and the baseline group. (Significant results highlighted in the graphs below.)

We show the capacity of NRSs to <u>increase knowledgeability</u> of minority parties among participants in the treatment group. At the same time, however, exposure and knowledge do not automatically translate to a supportive change in voting behavior for the promoted parties.

Results suggest an <u>inverse relationship</u> between party exposure and party support (voting behavior), meaning that more exposure and knowledge can also lead to negative positions towards the political program of parties.

In the context of political news, NRS for political news have a measurable and significant impact on their target audience. Therefore, designers of NRSs need to be mindful of the societal impact of their systems and consider the normative aspects. Further user studies are required to properly assess the impact.

News Supply

	Control Group	Experimental Group
Social democrats (SPD) (incumbent)	37%	22%
Conservative (CDU)	26%	15%
Green party (GRÜNE)	12%	8%
Liberals (FDP)	13%	29%
Left (LINKE)	5%	10%
Populist far-right (AfD)	5%	12%
Other parties	2%	4%

News Demand

	Control Group	Experimental Group
Social democrats (SPD) (incumbent)	72.4	91.3
Conservative (CDU)	30.2	42.3
Green party (GRÜNE)	19.8	28.6
Liberals (FDP)	42.2	71.1
Left (LINKE)	13.4	16.7
Populist far-right (AfD)	34.9	45.8
Other parties	3.7	6.8

Political Knowledge

	Control Group	Experimental Group
Social democrats (SPD) (incumbent)	98%	100%
Conservative (CDU)	98%	97%
Green party (GRÜNE)	88%	98%
Liberals (FDP)	82%	98%
Left (LINKE)	89%	94%
Populist far-right (AfD)	78%	95%

Voting Behavior

	Control Group	Experimental Group
Social democrats (SPD) (incumbent)	15%	30%
Conservative (CDU)	26%	19%
Green party (GRÜNE)	21%	16%
Liberals (FDP)	13%	10%
Left (LINKE)	12%	1%
Populist far-right (AfD)	11%	10%
Other parties	11%	14%