

# Controlled Personalization in Legacy Media Online Services: A Case Study in News Recommendation

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## Media Futures



## Motivation

- Aftenposten, a legacy media organization, is Norway's leading national newspaper
- **Aftenposten's challenge:** Balance technological innovation in personalization with core editorial values
- **Solution:** Controlled personalization, i.e., combine editorially curated content with algorithmically selected articles
- **Goal:** Evaluate effects of personalized recommendations on user engagement and journalistic values

## Research Question

How does controlled personalization influence user behavior across the dimensions of user engagement, diversity, coverage, and popularity?

## Methodology

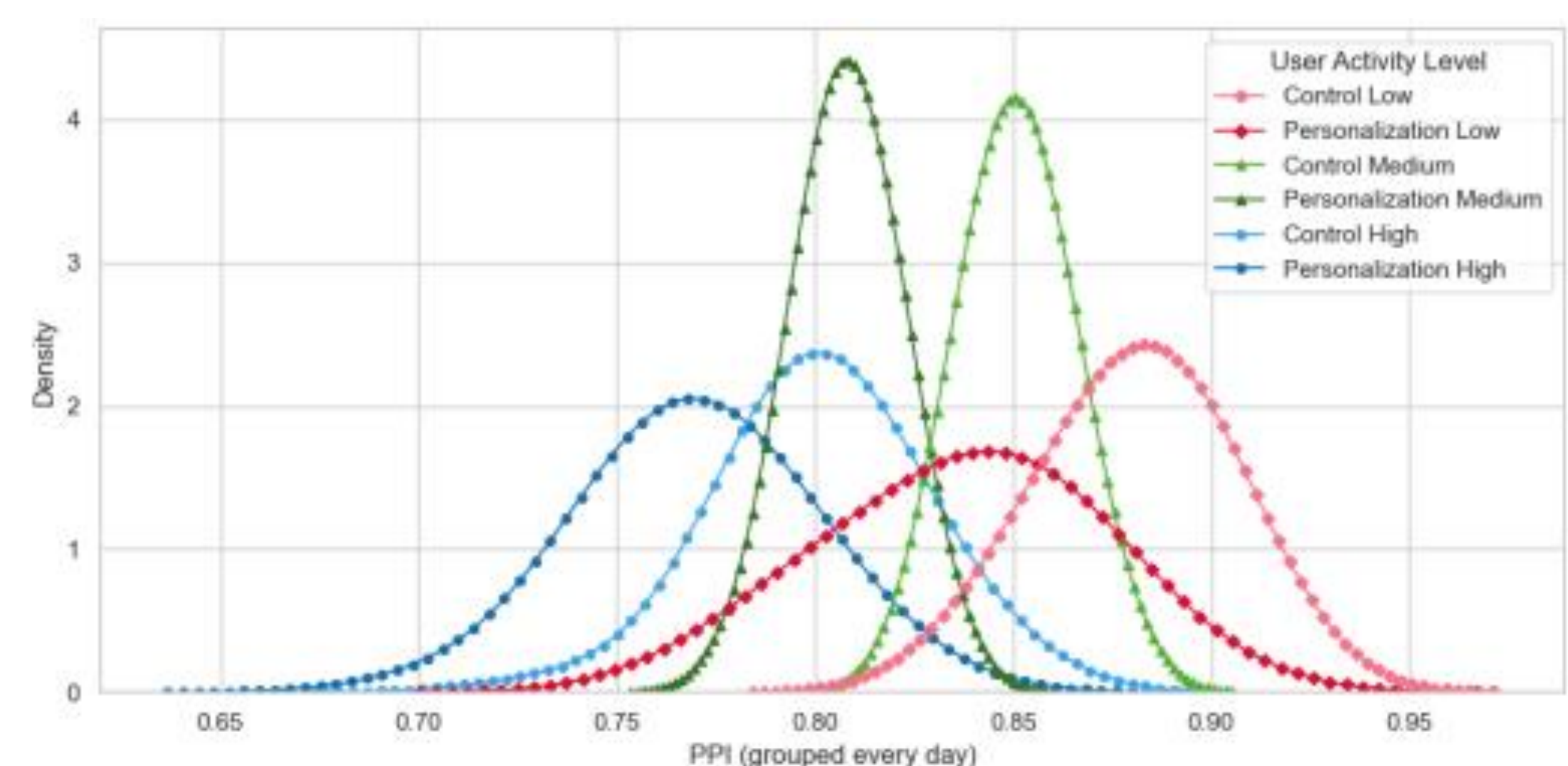
- **A/B test** (November 2023 – January 2024, 34 days)
- Participants: Approximately 58,000 subscribers
- Comparison: Existing non-personalized method vs. a novel personalized method (an extension of the previous one)
- Influence or weighting of personalized method: 20 % on final recommendations
- **Data analysis** of A/B test:
  1. Data extraction, preparation, and cleaning
  2. Evaluating (i) **user engagement** and (ii) **journalistic value** metrics
    - (i) Click-Through-Rate, Canceled Click Rate, Impressions Per User, Clicks per User, Average Reading Percentage per Click, Average Activity Duration per Click
    - (ii) Diversity: Distribution of Viewed and Clicked Items, Gini Index  
Coverage: Click Coverage  
Popularity: Average Recommendation Popularity, Average Click Popularity, Percentage of Popular Items
  3. Statistical significance testing
- Different aggregation strategies: entire A/B testing period, daily statistics, per user activity levels

## Results: Engagement

- Personalization can help users identify relevant content more quickly
- With personalized recommendations, users explore more articles

## Results: Journalistic Values

- Personalization leads to a more diversified exposure of articles and a slightly more diversified consumption behavior
- The personalization group shows a more extensive or broader distribution of clicks across the content presented
- The personalized recommendations, on average, include less popular items, and the readers click on these less popular items



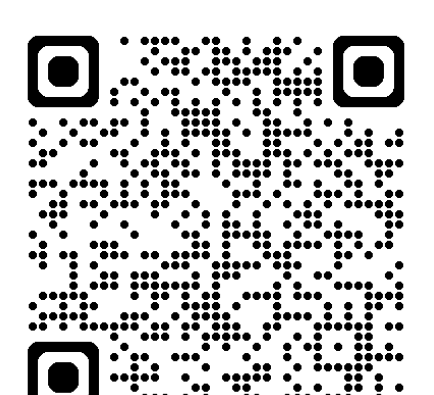
**Figure: Probability density functions for the Percentage of Popular Items metric.** It illustrates a decrease in popularity bias through personalized recommendations. The popularity bias is highest for the least active user group—they catch up with trending news. The bias is generally lower the more active users are—they consume more niche content.

## Conclusion & Contributions

- We showcased that personalization can also be effective in the particular environment of legacy media online services
- We emphasize that multi-dimensional analyses are needed to fully understand the effects of personalization on users
- Our work can serve as a blueprint for similar legacy news organizations

## Future Directions

- Technical: Exploration of alternative recommendation strategies and adding more influence to the personalization component
- Future Analyses: Take subgroups and user demographics into account
- Business: Analyze additional A/B tests over longer periods of time and study customer retention from a longitudinal perspective



### PARTNERS



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