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**Analyzing the gap between  
intrinsic desire and situational context of  
news contents curation in mobile environment.**

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**||||| Hye yeon Lee |||||**

A decorative graphic featuring a large number '1' inside a circular frame with a pattern of small circles and lines. To the right of the '1' is a horizontal bar chart with ten vertical bars of varying heights.

# 1 Outline

- Introduction
- Related Work
- Theoretical background
- Research Hypothesis
- Experiment Design
- Experiment Result
- Conclusion



# Introduction



## ”Age of the Social Media”



Access more information.  
Anyone can make information.  
Digital contents are overloaded.



It is difficult to find the user’s desired contents.

## Introduction |||||

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### "The Paradigm of news consumption"



Digital News curation is one of the paradigms.  
One way communication → Multi-direction communication  
Selection, preservation, maintenance, collection.  
Archiving of digital assets.

Enable to users to quickly and easily find desired news.

# Introduction |||||

## “News curation service”



Flipboard / News Picks / Vingow / BuzzFeed / Ziny news / huff post

The role of digital curation : record, reproduce, reuse.



# Related Work



## “Definition of curation”

- Thurman, N., &Schifferes, S. (2012). The future of personalization at news websites: lessons from a longitudinal study. *Journalism Studies*, 13(5-6), 775-790.
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- Ovadia, S. (2012). Staying informed with really simple syndication (RSS). *Behavioral &Social Sciences Librarian*, 31(3-4), 179-183.
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## “Social media and News”

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- Harrysson, M., Metayer, E., &Sarrazin, H. (2012). How 'social intelligence'can guide decisions. *McKinsey Quarterly*, 4, 81-89.
- Kenney, L., &Maresh, J. 4. ATTENTION: SEARCH, FILTER, CURATION, CONTENT, AGGREGATION. *Participation Literacy Spring 2012*, 26.
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- Godbole, N., Srinivasaiah, M., &Skiena, S. (2007). Large-Scale Sentiment Analysis for News and Blogs. *ICWSM*, 7.
- O'Banion, S., Birnbaum, L., &Hammond, K. (2012, September). Social media-driven news personalization. In *Proceedings of the 4th ACM RecSys workshop on Recommender systems and the social web* (pp. 45-52). ACM.
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- Park, S., Lee, S., &Song, J. (2010, February). Aspect-level news browsing: Understanding news events from multiple viewpoints. In *Proceedings of the 15th international conference on Intelligent user interfaces* (pp. 41-50). ACM.



# Related Work



## “Curation Service”

Cui, B., Wang, W., Zhou, W., & Yokoi, S. (2013, December). An exploration of Protecting Local Culture via Content Curation in Local Online Museum. In *Signal-Image Technology & Internet-Based Systems (SITIS)*, 2013 International Conference on (pp. 391-395). IEEE.

Zhong, C., Shah, S., Sundaravadivelan, K., & Sastry, N. (2013, June). Sharing the Loves: Understanding the How and Why of Online Content Curation. In *ICWSM*.

## “Social media and News”

Park, S., Kang, S., Chung, S., & Song, J. (2009, April). NewsCube: delivering multiple aspects of news to mitigate media bias. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 443-452). ACM.

Guy, I., Ronen, I., & Raviv, A. (2011, October). Personalized activity streams: sifting through the river of news. In *Proceedings of the fifth ACM conference on Recommender systems* (pp. 181-188). ACM.

## “Personalization”

Thurman, N. (2011). Making ‘The Daily Me’: Technology, economics and habit in the mainstream assimilation of personalized news. *Journalism*, 12(4), 395-415.

Lehmann, J., Castillo, C., Lalmas, M., & Zuckerman, E. (2013, May). Finding news curators in twitter. In *Proceedings of the 22nd international conference on World Wide Web companion* (pp. 863-870). *International World Wide Web Conferences Steering Committee*.

Hall, C., & Zarro, M. (2012). Social curation on the website Pinterest. com. *proceedings of the American Society for Information Science and Technology*, 49(1), 1-9.

Beam, M. A., & Kosicki, G. M. (2014). Personalized News Portals Filtering Systems and Increased News Exposure. *Journalism & Mass Communication Quarterly*, 91(1), 59-77.

Stefik, M., & Good, L. (2011, April). The News that Matters to You: Design and Deployment of a Personalized News Service. In *IAAI*.



# Related Work



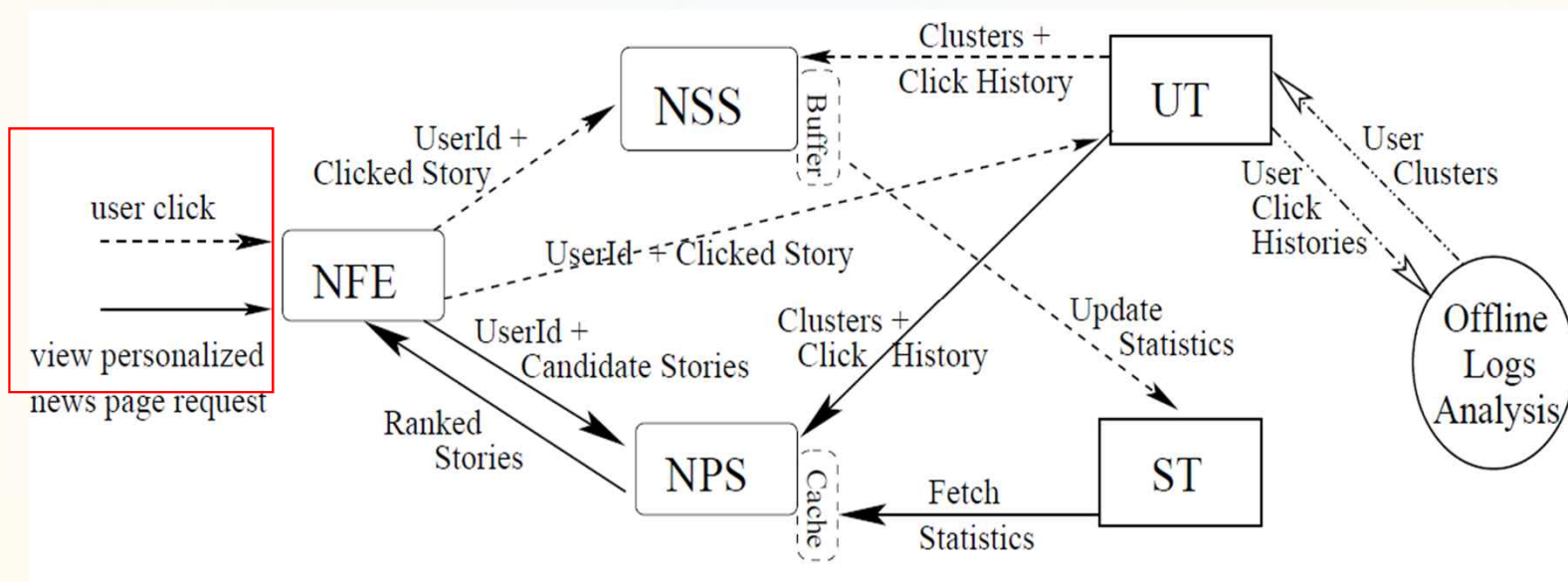
## “Recommendation system”

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- Liu, J., Dolan, P., & Pedersen, E. R. (2010, February). Personalized news recommendation based on click behavior. In Proceedings of the 15th international conference on Intelligent user interfaces (pp. 31-40). ACM.
- Freyne, J., & Berkovsky, S. (2010, February). Intelligent food planning: personalized recipe recommendation. In Proceedings of the 15th international conference on Intelligent user interfaces (pp. 321-324). ACM.
- Ilievski, I., & Roy, S. (2013, October). Personalized news recommendation based on implicit feedback. In Proceedings of the 2013 International News Recommender Systems Workshop and Challenge (pp. 10-15). ACM.
- Garcin, F., Dimitrakakis, C., & Faltings, B. (2013, October). Personalized news recommendation with context trees. In Proceedings of the 7th ACM conference on Recommender systems (pp. 105-112). ACM.
- Yeung, K. F., & Yang, Y. (2010, September). A proactive personalized mobile news recommendation system. In Developments in E-systems Engineering (DESE), 2010 (pp. 207-212). IEEE.
- Li, L., Wang, D., Li, T., Knox, D., & Padmanabhan, B. (2011, July). Scene: a scalable two-stage personalized news recommendation system. In Proceedings of the 34th international ACM SIGIR conference on Research and development in Information Retrieval (pp. 125-134).



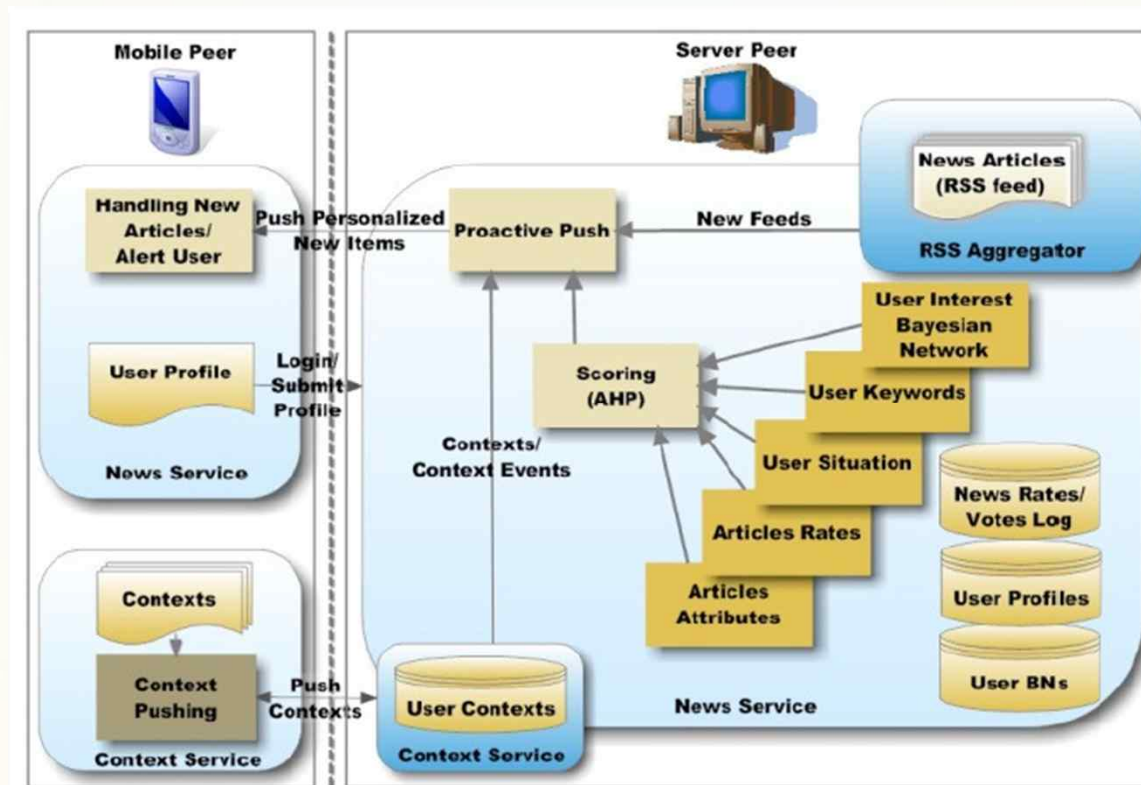
## Related Work |||||

### “Google News Personalization: Scalable Online Collaborative”



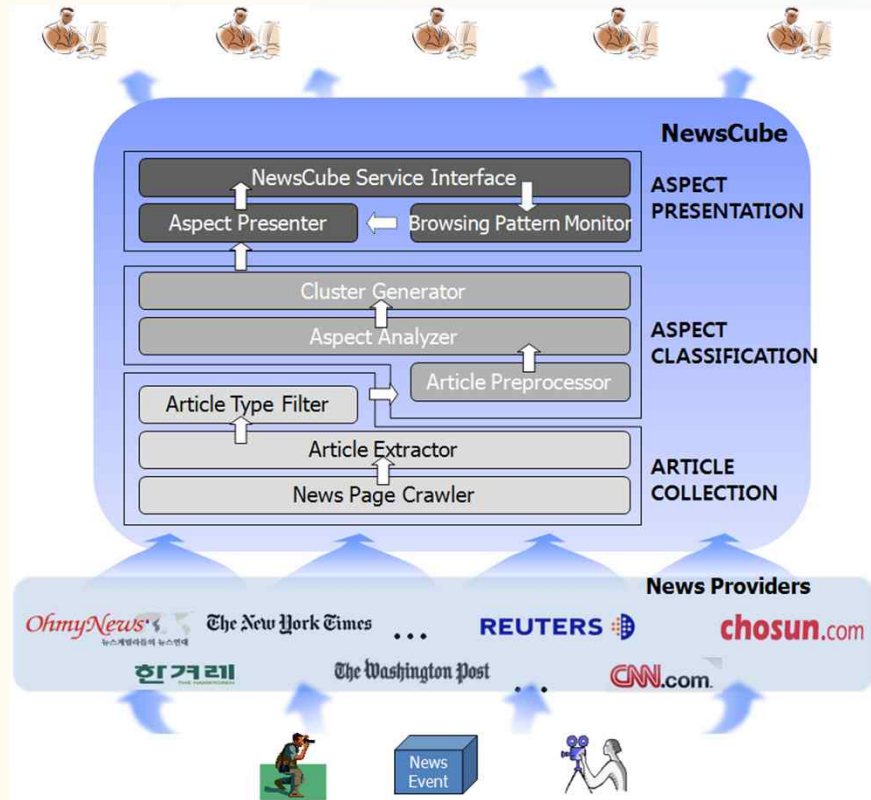
## Related Work |||||

### “Proactive Personalized Mobile News Recommendation system”



# Related Work |||||

## “NewsCube: Delivering Multiple Aspects of News to Mitigate Media Bias”



The screenshot shows a news website interface with the following components:

- Navigation Tabs:** 주요기사 (Main News), 정치 (Politics), 경제 (Economy), 사회 (Society).
- Group 1 (Main News):** "이명박 특검 대부분 합헌" ...수사 계속 (Lee Myung-bak special prosecutor mostly constitutional... investigation continues). Includes a photo of a courtroom and a brief summary.
- Group 2 (Other News):** "의미 : `동행명령제` 위헌` 특검관행` 제동 (Meaning: 'Accompanying order' unconstitutional, special prosecutor practice stopped). Summary of a constitutional court decision.
- Group 3 (Other News):** "이명박 특검법은 합헌", 특검 수사 예정대로 (Lee Myung-bak special prosecutor law is constitutional, special prosecutor investigation as planned). Summary of a court decision.
- Group 4 (Other News):** 헌법학자들 `헌재 결정, 예상했던 결론` (Constitutional scholars 'Constitutional Court decision, expected conclusion'). Summary of legal analysis.
- Group 5 (Other News):** "이명박 특검" 시민반응, "이참에 말끔히 털고 가야" (Lee Myung-bak special prosecutor, citizen reaction, "Must be cleaned up thoroughly now"). Summary of public opinion.
- Group 6 (Other News):** "이명박특검법" 헌법소원 오후 2시 선고 (Lee Myung-bak special prosecutor law, constitutional petition judgment at 2 PM). Summary of a court ruling.



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# Research Hypothesis

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## Research Question 1.

Are users' revealed preferences are the same as their preferred preferences in the selection of their favorite news categories in mobile environments?

## Research Question 2.

If there are any differences, what are the metrics to characterize them?



# Theoretical background



## “Stated Preference and Revealed preference”

This Theory, pioneered by American economist Paul Samuelson, is a method of analyzing choices made by individuals, mostly used for comparing the influence of policies on consumer

### “Stated Preference”

refers to what a user explicitly stated as his or her preference

### “Revealed preference”

Refers to what he or she actually consumed

## Theoretical background |||||

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### **“Intrinsic motivation”**

It is driven by an interest or enjoyment in the task itself, and exists within the individual rather than relying on external pressures or a desire for reward.

### **“Context of situation”**

The totality of extralinguistic features having relevance to a communicative act. The environment of the text.



## Experiment Design



### ” A simple test application”

Most top domestic news providers and some well-known international news providers such as CNN.

News websites were made based on the Traffic rankings provided by Alexa(<http://www.alexacom>).

Among the top-20-traffic-ranked news websites in South Korea.

We chose top 10 news websites that provide RSS feeds by category.

# Experiment Design

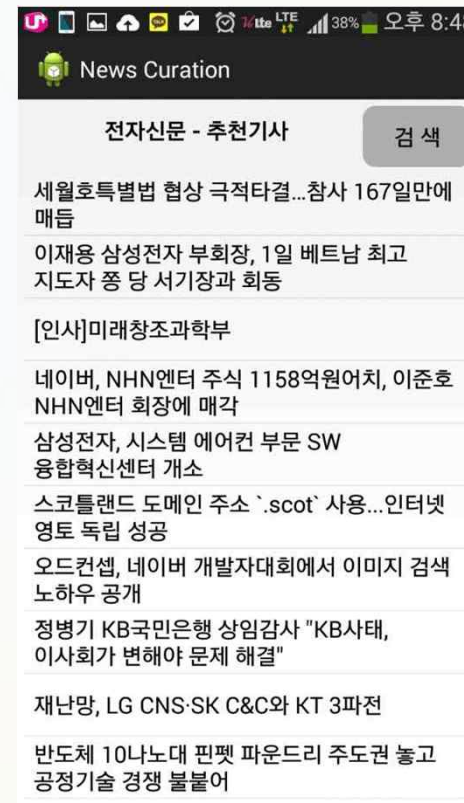
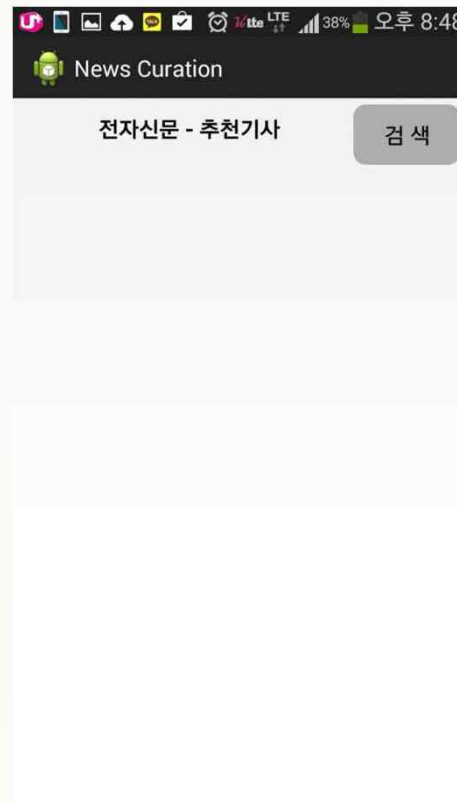
## ” Top news website”

순위(전체순위)	언론사	사이트	RSS
1(30)	동아일보	<a href="http://www.donga.com">www.donga.com</a>	○
2(31)	조선일보	<a href="http://www.chosun.com">www.chosun.com</a>	○
3(60)	아시아경제신문	<a href="http://www.asiae.co.kr">www.asiae.co.kr</a>	X
4(61)	중앙일보	<a href="http://www.joins.com">www.joins.com</a>	○
5(74)	매일경제	<a href="http://www.mk.co.kr">www.mk.co.kr</a>	X
6(79)	한국경제	<a href="http://www.hankyung.com">www.hankyung.com</a>	X
7(84)	연합뉴스	<a href="http://www.yonhapnews.co.kr">www.yonhapnews.co.kr</a>	X
8(86)	경향신문	<a href="http://www.khan.co.kr">www.khan.co.kr</a>	○
9(87)	SBS	<a href="http://www.sbs.co.kr">www.sbs.co.kr</a>	?
10(108)	머니투데이	<a href="http://www.mt.co.kr">www.mt.co.kr</a>	△
11(133)	허핑턴포스트	<a href="http://www.huffingtonpost.kr">www.huffingtonpost.kr</a>	X
12(139)	한겨레	<a href="http://www.hani.co.kr">www.hani.co.kr</a>	○
13(147)	KBS	<a href="http://www.kbs.co.kr">www.kbs.co.kr</a>	?
14(151)	전자신문	<a href="http://www.etnews.com">www.etnews.com</a>	○
15(162)	CNN	<a href="http://www.cnn.com">www.cnn.com</a>	?
16(165)	스포츠서울	<a href="http://www.sportsseoul.com">www.sportsseoul.com</a>	○
17(188)	오마이뉴스	<a href="http://www.ohmynews.com">www.ohmynews.com</a>	○
18(205)	이데일리 뉴스	<a href="http://www.edaily.co.kr">www.edaily.co.kr</a>	X
19(228)	NY Times	<a href="http://www.nytimes.com">www.nytimes.com</a>	



# Experiment Design |||||

## ”A simple test application”



## Experiment Design



### “Participants”

We recruited participants (N=20; male: 14, female: 6) through posting on our school’s intranet and one of the author’s Facebook. Their ages ranged from 19 to 33 years old (M=26.75, SD=3.04).

### “Instruction”

The participants, after installing the application on their mobile phones, were then instructed to read news articles through the application for a week at least 10 minutes a day.

The application’s purpose was collecting information on the types and number of news categories that the participants read, which was not explicitly told to the participants. In a week we conducted a one-on-one interview with each participant.

## Experiment Design



### “Procedure”

All the participants read news articles using our test application for a period of one week.

After a week, we had one-on-one interviews with them.

The interview was conducted at a convenient place to each participant - either at a university seminar room or at coffee shops – for about 30 minutes.

# Experiment Design



## “Questionnaire”

- 1) How often do you read news on your mobile phone in a week?  
(Never or Rarely/ 1-2 Days/ 3-4 Days/ 5 Days/ Everyday)
- 2) By what routes do you read news?  
(Web Portals/ Social Network Services (Facebook, Tweeter, etc.)  
/News Apps (Flipboard, Paper, etc)/ Dedicated News Website Apps  
(CNN, New York times, Etc.)/ Recommended Links)
- 3) Have you ever used any news curation applications?  
- If “yes”, write down the application names.
- 4) Among the 18 categories below, please rank top 5 categories that you are interested in or want to read.  
(Main articles, Popular articles, Breaking news, Politics, Economy, Society, Culture, Sports, World, Entertainment, Photo, Region, Opinions, Travel & Health, Technology & Science, Life, Fun & Humor, Education)



## Experiment Result



### ”Matching Group and Mismatching group”

Each participant chose his or her top 5 favorite news categories in the questionnaire, we compared those with their top 5 actual choices.

we made a formula to compute matching scores between stated preference and revealed preference as follows, considering the ordering effect among the news categories in the preferences.

$$\textit{Matching score} = k_1\alpha + k_2\beta$$



# Experiment Result



## "Matching Group and Mismatching group"

Matching Group



Participant	score	Participant	score
<b>P1</b>	13.8	<b>P9</b>	4.8
<b>P15</b>	11.4	<b>P2</b>	4.2
<b>P19</b>	10.2	<b>P10</b>	4.2
<b>P6</b>	8.4	<b>P13</b>	3.6
<b>P5</b>	7.2	<b>P3</b>	3
<b>P14</b>	7.2	<b>P18</b>	2.4
<b>P4</b>	6	<b>P20</b>	1.8
<b>P11</b>	6	<b>P7</b>	1.8
<b>P17</b>	5.4		
<b>P12</b>	5.4		
<b>P16</b>	5.4		
<b>P8</b>	5.4		

Mismatching Group



Drop





## Experiment Result



### ”Focused interview Analysis”

- Ease of access
- Escapism
- Sociality
- Gaining information

## Experiment Result

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### ”Focused interview Analysis”

**Ease of access.** Participants read news habitually (and unconsciously) mainly because their mobile phones are (almost) always in their hands.

**Escapism.** Participants seek fun or interesting news articles when they have leisure time to spend.

**Sociality.** Participants read news because they want to know what are happening in the society and the world, which helps them having conversation with other people.

**Gaining information.** Participants wish to gain the information that they want, particularly the information that may be relating to their business, tasks, or studies.





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## Conclusion

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We proposed a way of modeling the difference between users' stated preference (SP) and revealed preference (RP) for digital news curation in mobile environments, particularly using smartphones.

A pilot study with 20 participants showed that there exist possibly two distinct groups – one with small difference between SP and RP and the other with relatively big difference.

We also analyzed factors and characteristics associated with the two groups

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# Thanks

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