# *Comprehensive Terms Board Visualization for News Analysis and Editorial Story Planning (Demo)*

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## *Motivations*

### *Improving comprehensive knowledge:*
Acquiring knowledge about a topic during reading, analyzing and writing is complex. Various global and archive based search engines provide interfaces with general and advanced search criteria to lead a knowledge seeker to find relevant information, but they do not comprehend underlying resources to aid individuals' metacognition. Comprehensive visualization has the potential to aid metacognition.
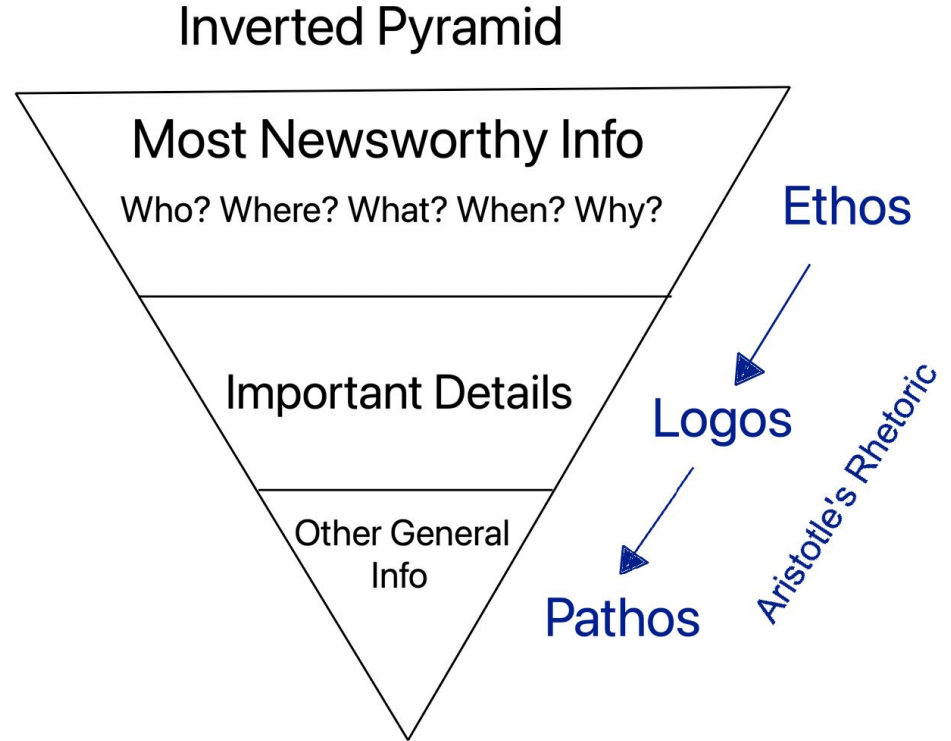- Better understanding of underlying evidence during fact checking and understanding
- Better understanding about underlying subtopics and their relativity

### *Improving knowledge presentation during writing:*
Story planning ensures better engagement and understanding of the audience through better organization of the content. The facts of news are encapsulated in five basic questions "Who", "Where", "What", "When" and "Why" which are fundamental for any news readers' understanding. For planning content representation of a news story better understanding of these categorical facts can improve audience engagement.

### *Improving metacognition by introducing cognitive control:*
Metacognitive strategies refer to general skills through which individuals manage, direct, regulate and guide planning, monitoring and evaluating their knowledge which can benefit from introducing cognitive control. By introducing purposeful goal oriented behaviour and decision making, cognitive control allows individuals to step out of the realm of habitual response and provides flexibility to think and act in a novel and creative manner.

# *News writing*

⇨ Inverted pyramid structure
   ○ Safe transfer to next news
   ○ Engage reader

⇨ Controlled information flow

⇨ Facts are preserved in What, When, Who, Where, Why and sometimes How.

## Inverted Pyramid

**Most Newsworthy Info**
Who? Where? What? When? Why?

**Important Details**

Other General Info

Ethos

Logos

Pathos

Aristotle's Rhetoric

# *Cognitive reading & writing experiment*

We recruited 32 students and each student was given 2 tasks.

- In one task they were given a list documents to write a story
- In other task they were given a Terms Board along with a list of documents.

# *Results*

**Table 1: Writing Performance**

| Criterion | Scale | List(mean) | TB and List(mean) | P-value | Hypothesis testing with p = 0.05 |
|---|---|---|---|---|---|
| Quality of story | 1(Poor) - 5 (Very good) | 3.46875 | 3.515625 | 0.4974603636 | Can not reject null hypothesis |
| Completion time | Suggested 20 mins | 13.8 min | 16.0 min | 0.03805485437 | Reject null hypothesis |
| Ease | 1(Hard) - 5 (Very easy) | 3.21875 | 2.84375 | 0.02596133121 | Reject null hypothesis |

# *Google Analytics Evaluation*
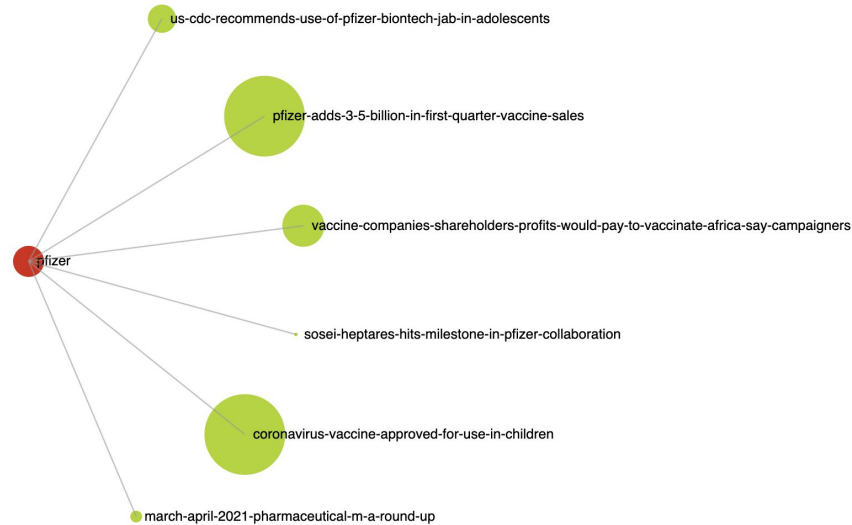


**A list of documents task**
- **53% participants selected 2 to 6 documents from the list of presented documents and then they have chosen 2 to 3 documents to base their story.**
- **No analytics of interaction (document click) was found for 41\% participants. They based their story on the title and introduction.**

# *Google Analytics Evaluation Cont.*



**TB visualization with a list of documents task**
- **18% participants started thinking about 5 to 6 cards and then narrowed their focus to 2 to 3 cards. Then they selected consistent terms to select 1 to 4 documents for writing a story.**
- **59% of the participants did not visit any documents. They started thinking about 1 to 5 cards and then checked 1 to 3 time-series aspects then narrowed their focus on 1 or 2 time-series aspects and used the modal information to write the story. Only one participant in this group selected one document based on consistent terms.**
- **18% participants bypassed interpreting TB and based their story on the title and introduction.**

# *Conclusion*

- Authors are knowledge providers. Ascertaining facts for the knowledge providers is essential. TB is designed to comprehend facts and aid in improving an individual's metacognition to create a plan for a designated task based on a strategy.
- TB has the potential to contribute to new analysis and editorial writing.
- TB can expose the metacognition process while writing. In this paper, we demonstrated TB using a news corpus and showed that TB contributed to metacognition and quality of writing by aiding planning before writing a story.
- TB can also be used for other text corpora such as articles and books to aid brainstorming for learning and teaching.

Thank you