Uncovering Mental Models to Inform Mobile Information Architecture: The Use of Repeated Cluster Analyses on Card Sort Data

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Background → Data Collection → Cluster Analysis → Conclusions

Information Architecture

"The structural design of shared information environments.

The art and science of organizing and labeling web sites, intranets, online communities and software to support usability and findability.

An emerging community of practice focused on bringing principles of design and architecture to the digital landscape."

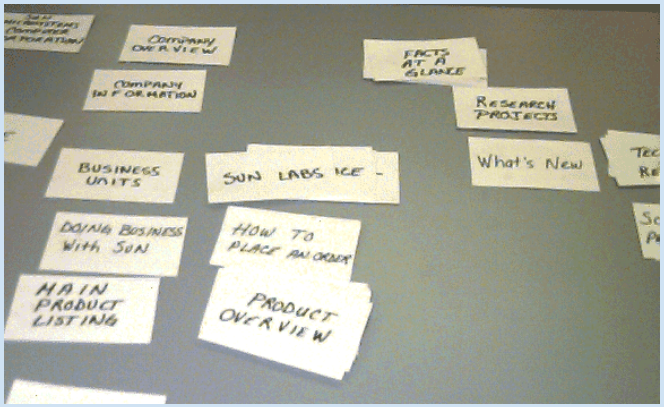
- The Information Architecture Institute

Mobile human interface guidelines frequently suggest a hierarchical information architecture (IA).

Card sorting techniques could inform this IA.

Card sorting can be used to understand a user's mental representation of information.

Aggregating large numbers of items across multiple users can be challenging.



www.nngroup.com

Cluster analysis is a method that has been used to aggregate users responses (Lewis, 1991).

	Apple	Pear	Tree	Forest	Rock
Apple	10				
Pear	10	10			
Tree	7	6	10		
Forest	4	7	9	10	
Rock	0	0	0	0	10

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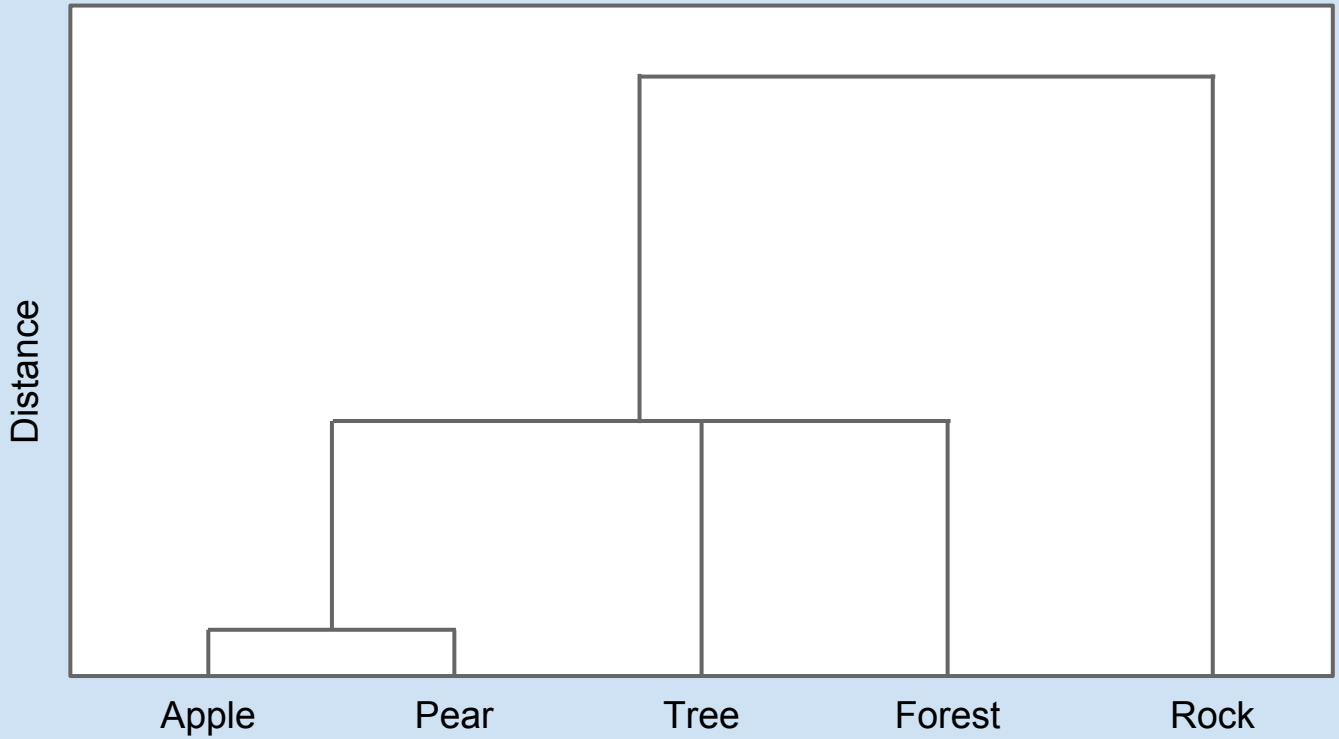
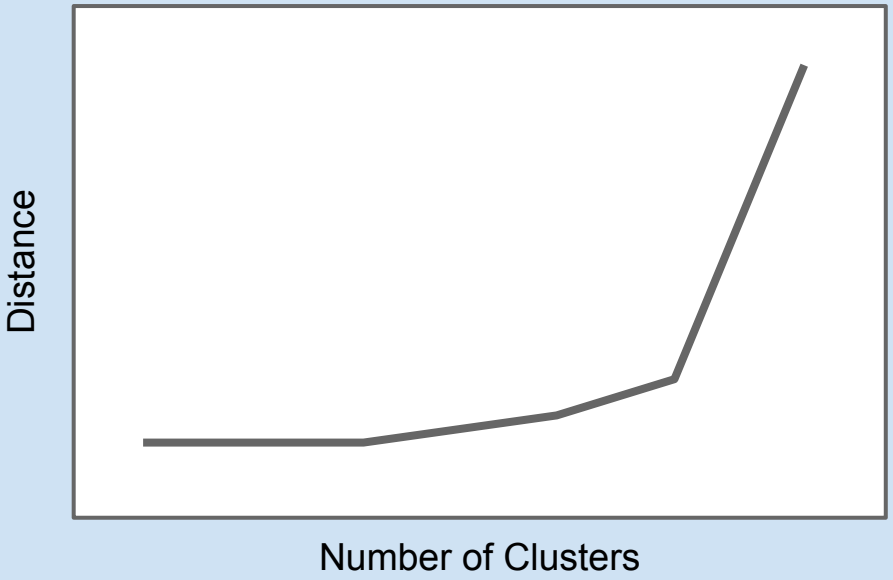


Cluster analysis solutions can be analyzed at different distances.



Toms, Cummings-Hill, Curry, and Cone (2001) used a different method of analyzing cluster analysis solutions.

Objective

To demonstrate how the method used by Toms et al. (2001) can be used to inform the information architecture of a mobile settings menu.

Identified 46 concepts in the iOS 6 settings menu

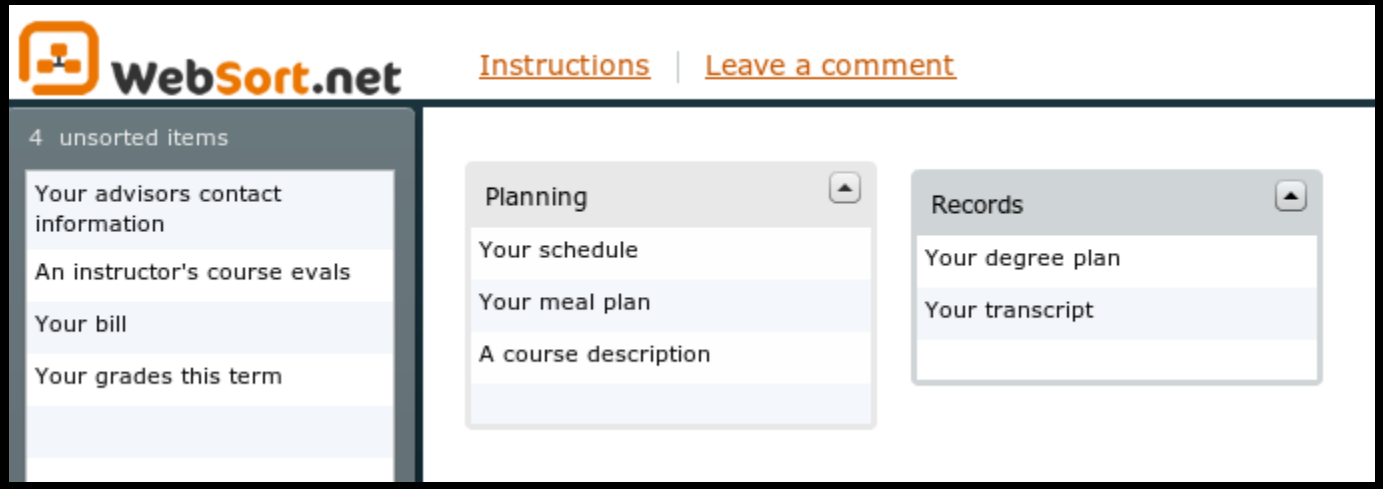
Entered these list of concepts on websort.net

Recruited 10 iOS users and provided them a link to the card sort

Users visited the URL and sorted the concepts into groups and named them.

I downloaded a proximity matrix from websort.net.

	Item 1	Item 2
Item 1	10	6
Item 2	6	10



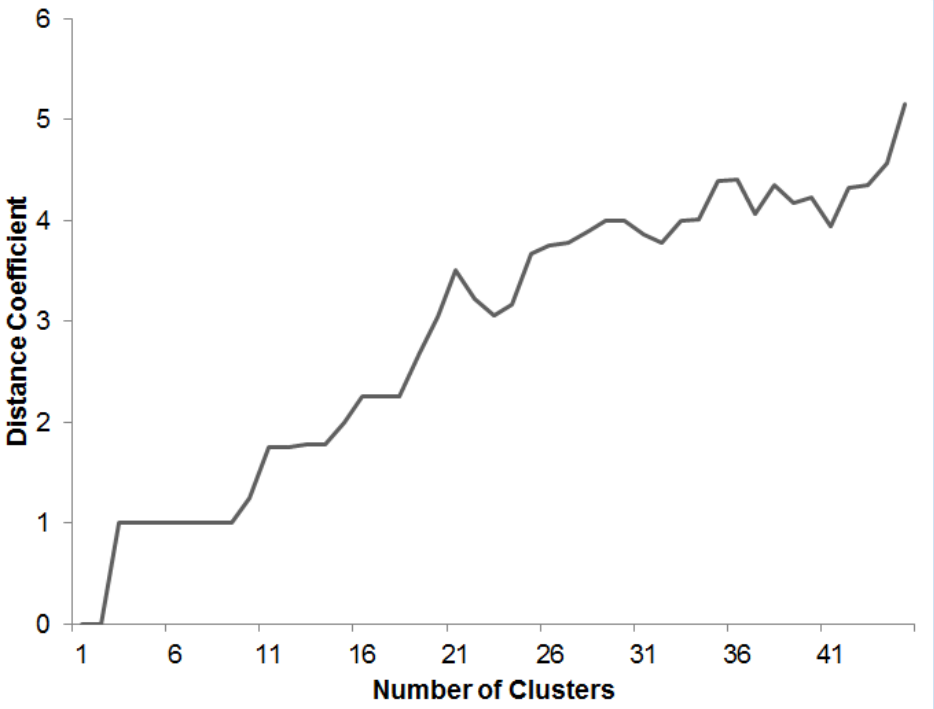
Conducted a hierarchical cluster analysis

Scree plot technique resulted in 37 clusters for 46 concepts

I used the average number of groups that users used (i.e., 9)

I still had 22 concepts in a single cluster

I used the maximum number of groups that a user used (i.e., 16)



1. Privacy and security
2. Network
3. Usage
4. Detailed settings
5. Incoming calls
6. Audio settings
7. Sync with iTunes on Your Computer
8. Battery Usage Display
9. Ad Tracking Settings

- 4.1. Phone Information
- 4.2. Diagnostic tracking
- 4.3. Screen reader
- 4.4. Visibility
- 4.5. Reset
- 4.6. Keyboard
- 4.7. Phone Settings

Implications: Repeated cluster analyses can reveal hierarchical information structures

Limitations: Small sample size, lack of validation

Future directions: Conduct usability testing to validate this approach to cluster analyses

Applications: Mobile user experience designers could possibly use this method to match information architecture to users' expectations