

## RESEARCH REVIEW

Format Comparison Survey:  
Exploring preferences for slideshows and Concept Maps for  
information presentation

Presented by  
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Globally, in business, government and military settings, slideshows of the type created with Microsoft PowerPoint® are a preferred medium for presenting complex ideas. But many critics have pointed the tendency of slideshows to reduce the analytic quality of presentations and narrow the range of options for expression available to presenters.

We are researching the efficacy and efficiency of Concept Maps (Cmaps) for presenting information in the context of rapid and accurate idea transfer. In May 2008, we conducted an online survey of 34 professionals drawn from a wide range of professions in industry, government, military and academic settings, to include researchers, officers, marketers, and teachers. The survey examined respondents' [preference for](#) and [familiarity with](#) both PowerPoint and Concept Map formats, and their [willingness to use](#) Concept Maps for information presentation.

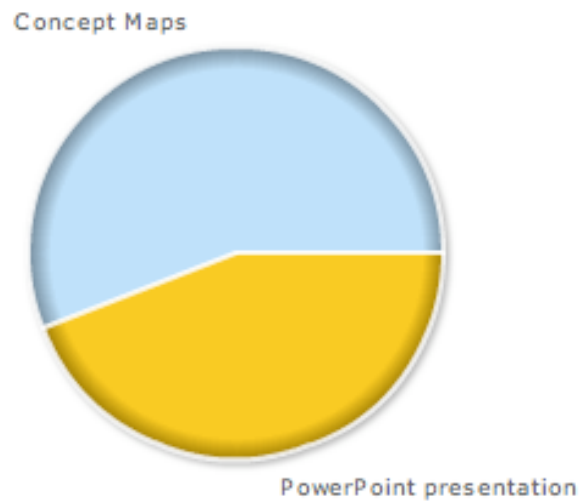
This Research Review presents the results of the survey. It concludes with [Commentary](#) on the results. A complete review of the survey methodology and the demographics for the respondents is provided in the [Appendix](#).

The survey was part of our wider program of research into the presentation capabilities of [IHMC's CmapTools](#). Future Research Reviews will present other findings from the program.

We extend our sincere appreciation to the professionals who responded to the survey. Their responses represent the first empirical view of presentation preferences for Concept Maps.

## Preference

Respondents were asked to review a complex information set, presented first in a PowerPoint slideshow, then in CmapTools' Concept Maps. Over 55% of respondents preferred the Concept Maps, while about 44% preferred the PowerPoint presentation.



Respondents who preferred the Concept Maps offered a variety of reasons for their choice, focusing on the form and content of the Cmaps, the navigational and exploratory freedom, and the connectivity with the 'gist' or most important points:

Form and Content	Navigational and Exploratory Freedom	Connectivity with the 'Gist'
The CMAP presents a logical connection between the concepts. Thus, the information is more readily prepared for consumption by the brain.	The Concept Map format allowed me to explore the ideas being presented according to the perspectives that I was interested in.	The main ideas are presented in a logical and condensed flow which allows for quick scanning and gives the reader to bypass information that's not interesting, or alternatively, allows the reader to effectively search for particular information.
The added benefit (value) of seeing some implied relationships between the various areas or topics.	Ease of expanding specific concepts for additional information / reference.	The Concept Map format also gave me a better overall perspective on the 'landscape' of the thesis and the argument than the PowerPoint presentation.
Emphasis is on information content (i.e., ideas) rather than presentation format (e.g., graphics).	Easier to go at my own pace and investigate items of particular interest	The presentation allows you to see overall association of ideas and facts. It doesn't force you to go through all the slides until you find the information you are looking for.
The concept maps gave me a better road map for seeing connections.	Reviewing a concept by myself allows me to 'study' and navigate for myself.	Simple link diagrams on one display. Info presented in a higher level hierarchy with the ability to drill down to see details if desired.
The ease of seeing how the details of [information] are related	Having a constant overview option and voluntary control.	Easier to get a global perspective of the topic: 1) can foreshadow how thesis of presentation will be developed, 2) can revisit information.
Less distracting formatting on the CMaps, greater density of information.	The freedom to navigate from any point in the presentation	The main topics are bold, you can learn about them easily and have immediately the whole picture of the text. Just scanning....
Clarity of concepts and their relationships.	I could navigate through the Concept Map presentation.	Text content and context 'popped' out rather than requiring special effort to read.
Clean and concise presentation of information	For skimming, it is easier to navigate and focus.	I could drill down in a specific part of the Concept Map presentation, maintaining an overview.
Quick and concise	I get to select the order of facts to look at.	I did prefer the overview Concept Map over the PowerPoint because I had an instant overview that was easy to grasp.
		Top-down view

One respondent suggested an occupational reason for the preference:

I'm an engineer and understand these types of integrated charts.

These respondents also offered their perspective on the PowerPoint presentation, highlighting the same topics:

Form and Content	Navigational and Exploratory Freedom	Connectivity with the 'Gist'
The slides as presented did not give me as clear a picture of the inter-relationships between issues as the Concept Map did.	Not nearly as much accessible information. Even if the information was accessible, a PowerPoint brief would lose effectiveness and become an overwhelming eye chart.	I accumulated details and did not form macro statements. Also summary slides after each chunk of slides (chapter) would have assist to the coherence of the coherence of the presentation.
In almost all of the PowerPoints the choice of backgrounds and text colors made reading the text extremely difficult.	Power Point is very structured and doesn't allow a presenter to 'move around' a presentation if the presenter feels that he needs to.	The PowerPoint presentation gave me no sense of the scope of the paper before I had worked through all of the slides.
Logical associations can be lost through so many pages of information.	Scrolling to read notes at the bottom of the slides was annoying. Didn't take the time to read all the words.	I have missed at the beginning a summary passage and goals of the entire presentation.
Multiple formats were distracting; some were more visually appealing than others.	Not much insight into what was coming next; reader had burden of making connections.	You have to wade through too many slides, and too much information.
Slides in linear order may not be a good way for me to learn	It is linear. I have no idea of how long the brief is while in the middle of it.	Too much to read and try to understand the purpose.
It was harder to see how everything connected.	Too structured.	Finding the key point amongst the chafe [is difficult].

One respondent expressed a general aversion to slideshows:

PowerPoint presentations bore me.

Those that preferred the PowerPoint presentation expressed preferences for familiarity, linearity and, passive reception of information:

Familiarity	Linearity	Passive reception
I am accustomed to a linear presentation of ideas, though I would prefer an executive summary, and a prioritized grouping of the information.	There is a set order of slides so I don't need to worry if I am missing any vital pieces of information. Left up to me, I would definitely miss something on the concept map.	Along with someone presenting the information, this method flows better, and is easier to look at and absorb information.
It was easier to navigate the PowerPoint presentation since that is what I am used to.	Presents the idea in a clear straightforward manner, easier to digest as opposed to going around in circles trying to follow arrows.	It felt easier to grasp quickly. Had to study the maps far longer to understand.
Familiar outline format; notes provide the detailed information if I want it.	Easier to follow the threads/themes of the report in the PowerPoint presentation.	The Concept map requires more cognitive energy to go through.
It is what I am used to seeing at work.	I think it is easier to tell a story and bring the audience with you in the PPT format.	Easier to internalize.
More familiar with that presentation style.	The PowerPoint presentation draws interest that can build.	
It seemed more concise and familiar.		

Some found the quality of the PowerPoint slideshow to be not indicative of useful presentations, which may contain visual aids:

I prefer the PowerPoint if it is well done. Many of the slides were poorly done and difficult to read. If they have graphics and clear headings reflecting the section of the presentation we are in then I like those...[They can] offer visual images that can better illustrate a given point.

Respondents' reactions to the Cmaps fell into the same categories as their preferences for PowerPoint:

Familiarity	Linearity	Passive reception
It drives a certain organization of the information that may not be useful to why I'm being exposed to the information or, more importantly, how I will filter and connect different elements of the brief.	Even though I prefer PowerPoint b/c there is a set order of information flow, it was easier for me to understand the amount of information I was dealing with and to gain a better understanding of the issue with the concept maps.	The PowerPoint presentation, although poor and repetitive, could be read solely through the notes. After awhile, I began reading only the notes and ignoring the bullets.
The other format was new and seemed unorganized.	The Concept Maps didn't have a linear flow of ideas and that made it more difficult to connect them in a way that allowed me to build a coherent story of the material.	Not knowing anything about the subject, I'd be less interested in the concept map as I'd have to make a greater effort. It doesn't build.
	It's hard to know where to start reading. Needs some indication of the optimal order of review.	I did not like the more detailed Cmap because it is too much information to look at once.
	Other style made it harder to know if I looked at everything, would forget what I had or had not reviewed.	
	Initial look at the concept map is confusing and nonlinear; hard to figure out where to start.	
	I don't prefer Concept maps because I don't know where to start.	
	The cognitive map was harder to follow.	

Additionally, some respondents called into question the valued added by a diagrammatic method, particularly a Concept Map, for presenting the information:

A diagram is not necessary here. It doesn't help us understand the story...I could read the narrative of the notes faster than going through either presentation... Found myself not paying attention to verb connectors on Concept Maps. Usually did not add value or meaning that I could not immediately infer from linked balloons.

And some considered the level of familiarity with the content to be important for their preference for presentation format:

[Cmaps] would be a great method for a person already educated on a topic... [Cmaps] should not be used as a first look at the information to be conveyed. I think that [Cmaps] could be used as a secondary study aid to reinforce the material.

## Familiarity

Respondents were asked how familiar they were with each format, specifically whether they had experience in creating presentations in each. All respondents reported having created PowerPoint presentations for a variety of purposes, to include:

PowerPoint purposes		
Informing and communicating	Selling, promoting and marketing	Persuading and advocating
Explaining and summarizing	Communicating	Conceptualizing
Planning	Instructing and training	Updating

Comparatively, only 53% of the respondents had experience creating Concept Maps. While some of the purposes overlapped, respondents reported creating Cmaps for other purposes:

Cmap purposes		
Informing and communicating	Marketing	Studying
Explaining and summarizing	Communicating	Conceptualizing
Mapping and depicting	Documenting	Notetaking and studying
Experimenting	Analyzing	Gathering

## Willingness

Seventy-one percent of respondents expressed a willingness to consider using Concept Maps to present a wide range of idea types to audiences, including:

Types of ideas to present as Concept Maps		
Ideas that are particularly complex, where a map does a better job at illustrating complex inter-relationships than simple text would.	Describing concepts in the physical sciences (e.g., gravity) and biological sciences (e.g., ecosystems).	Anything requiring a rationale, call to action, or decision.
Showing how and why certain products were developed (system design type stuff).	Depict linkages, concepts (thoughts/ideas), data gathering, marketing	Relatively simple ideas with different aspects or decisions/outcomes.
Something more conversational and exploratory.	Complex, highly-interrelated topics delivered to a technical audience.	Topics presented for educational purposes.
Use in training to allow a group to navigate through particular problems.	Link diagrams of counter-insurgency intelligence	Showing connectivity between various knowledge users.
Product marketing presentations.	Any topic with more than a couple information 'branches'.	Corporate culture and influence.
Business Plan	Any integrated system.	Complex plans and proposals.
Actual research results.	Relations, links, flow.	History and Genealogy
Studies	Everything and Anything	Overviews

Several respondents expressed a willingness to consider using Concept Maps to present aspects of their presentations, or a willingness to explore them further:

I usually would not consider using Concept Maps to present ideas to audiences. However, it is worth trying to for at least several reasons. One reason is to give the audience a better overview of the presentation. Another reason is to allow for easier interaction with the audience, to go back to prior points, skip portions, etc...I could incorporate all into one concept map and then move around the concept map depending on what my purpose/audience was...I need to understand them better to really answer this question...I think they would be useful when the audience needs only portions of the information and does not want to filter through an entire PowerPoint presentation to find it...my preference would possibly change with experience with the concept map

Respondents who were not willing to consider using Concept Maps for presentation offered a variety of reasons, focusing primarily on familiarity, perceived limitations in capabilities, and perceived limitations in use:

Familiarity	Perceived Limitations in Capabilities	Perceived Limitations in Use
It doesn't fit into or corporate standards right now - but if it were to, I am sure that I would be able to adapt	My two reasons against are the challenges in navigating while at the podium (may be solved with cunning use of the animation feature, but I'm not familiar with that), and the problem of losing the audience in a too-complex map.	A 'clicking user' of a concept map can discover topics in the order and at a pace that makes sense. A spoken presentation relies on the storytelling skills of the speaker - order, media (e.g., PowerPoint), pace, metaphors, etc. It seems like it would be difficult to develop a concept map that allowed for this kind of delivery without distracting the audience.
Directed to create PowerPoint in dictated format.	I'm not sure how to talk through a concept map with an audience. Concept maps lend themselves to independently explore the component propositions.	Most people think linearly and build concept/information bases in layers, as opposed to building a network of ideas. The networked understanding comes after the foundation of information is already digested. Briefs and instructional material needs to be presented in a linear, piece-wise fashion for most people to follow along.
Not widely accepted	Typically in a presentation format you want more visuals, dialogue, a PowerPoint slide allows for this. Also, easier to internalize the information.	I think they are helpful tools for the person creating them, but it is difficult for most people to grasp. I feel they would be too complex to use in a presentation with the average audience
	A secondary benefit, easy navigation and concept relationships can also be expressed easily through a navigation bar in PowerPoint.	Concept maps are better for solo, interactive use. An audience would have no control over their individual experience, thus the core benefit is lost.
	It might require a laser pointer to isolate a portion of a map. After a while, it is too much work to sort out the maps. Our eyes are not used to scanning concept maps patterns.	I believe that unless you already know about the information to be presented, the concept maps are just confusing.
	Would have to walk them through it, might as well just do PowerPoint.	It's harder for people to follow, unless you were presenting it to them.
	Too small and detailed to present to an audience.	It seems like a concept map is not well suited to story telling.

## Commentary

We are intrigued by the results. Our respondents were drawn from a wide-range of professions, and they provided highly insightful comments expanding on their preferences.

We are very encouraged by the expected interaction of the familiarity and willingness issues. Clearly, familiarity plays a role in professionals' choice of presentation format. Yet, inspection of the data revealed that nearly one-third of the respondents who had never created Concept Maps were nonetheless willing to consider using them for presentation. And this group was nearly evenly split across the preference groups. Thus, it appears that the notion of Concept Maps as tools for presentation has considerable appeal.

We are inspired by the reasons given by the group that was not willing to consider Concept Maps for presentation. The perceived limitations in capabilities and uses offer insight into the need for enhanced capabilities and training in effective methods for presentation. They also speak to the role of the presenter, which was not explored in the Survey. The perceived limitations present growth areas for Concept Maps, and advancements in both capabilities and training may ultimately prove effective in overcoming the familiarity challenges.

## Appendix

### *Method*

All aspects of the Survey were conducted online, to include the invitation to participate, instructions, review of the formats, answering preference questions, and providing demographic data, which was optional. Data collection was managed through PollDaddy.com.

All participants were invited to review the PowerPoint and Cmap formats, which were provided in .html and viewable through web browsers. Participants were then asked to complete an anonymous survey (“Survey”) consisting of 10 questions. They were also asked to provide demographic data, but this was presented as optional.

### *Instructions*


#### **Format Comparison Survey**

Thank you for participating in our Survey. We are interested in comparing different formats for idea presentation. Results from the Survey may be reported publicly. However, all data will be recorded anonymously, and analyzed and reported in the aggregate.

There are four steps to complete. The last step is optional, and we hope that you will complete it. The entire survey should take no longer than 15 minutes to complete.

***You may want to keep this page open in a separate tab or browser so that you can return to it to continue the instructions.***

Step 1: [Click this link](#). Enter the Username “raitcmaps” and the Password “Per1gean”. Click “Continue” to navigate and review the presentation. We are interested in your opinions about the format in which the idea is presented, not the idea itself. Please take as much time as you need to study the idea.

Step 2: [Click this link](#) and review the information. Click the icons  to navigate and review the idea. Again, we are interested in your opinions about the format in which the idea is presented, not the idea itself. Please take as much time as you need to study the idea.

Step 3: [Click on this link](#), and complete the Survey. The following instructions are provided for the Survey:

Thank you for your voluntary participation in this survey. All data will be recorded anonymously, and will be analyzed in the aggregate.

You may stop the survey at any time. However, in order to complete it, you must answer all questions with a red asterisk (\*).

Please direct any questions to Brian Moon, Perigean Technologies LLC, [brian@perigeantechnologies.com](mailto:brian@perigeantechnologies.com).

Step 4 (Optional): [Click on this link](#), and answer the questions. The following instructions are provided for these questions:

Thank you for providing your demographic information. The following page presents five short questions. Your information will help us analyze the results we receive from all of the participants. All data will be recorded anonymously, and will be analyzed in the aggregate. None of the questions are mandatory, and you may stop the survey at any time.

Please direct any questions to Brian Moon, Perigean Technologies LLC, [brian@perigeantechnologies.com](mailto:brian@perigeantechnologies.com).

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### Questions

Q.1 Of the two formats you just reviewed – a PowerPoint presentation and Concept Maps – which do you prefer?

People who answered question: 34 (100%)

People who skipped question: 0 (%)

Q.2 What reason(s) can you offer for your preference?

People who answered question: 34 (100%)

People who skipped question: 0 (%)

Q.3 What reason(s) can you offer for not preferring the other format?

People who answered question: 32 (94%)

People who skipped question: 2 (6%)

Q.4 Have you ever created a PowerPoint presentation?

People who answered question: 34 (100%)

People who skipped question: 0 (%)

Q.5 If yes, what was/were the purpose(s) for creating it/them?

People who answered question: 34 (100%)

People who skipped question: 0 (%)

Q.6 Have you ever created Concept Maps?

People who answered question: 34 (100%)

People who skipped question: 0 (%)

Q.7 If yes, what was/were the purpose(s) for creating it/them?

People who answered question: 21 (62%)

People who skipped question: 13 (38%)

Q.8 Would you consider using Concept Maps to present ideas to audiences?

People who answered question: 34 (100%)

People who skipped question: 0 (%)

Q.9 If yes, what sorts of ideas might you present with Concept Maps?

People who answered question: 24 (71%)

People who skipped question: 10 (29%)

Q.10 If no, what reason(s) can you offer for not presenting ideas with Concept Maps?

People who answered question: 15 (44%)

People who skipped question: 19 (56%)

### *Invitation and Demographics*

Seventy-five invitations were sent via e-mail on May 8, 2008, to 75 of our colleagues:

Sir or Ma'am,

You are invited to participate in a brief Survey comparing idea presentation formats, hosted by Perigean Technologies LLC. You are receiving this invitation from someone who thought you might want to participate. We invite you to forward this message to other professionals in your network you believe might also want to participate. The Survey will run until the end of May 2008.

[Click this link to begin the Survey.](#)

Please direct any questions to Brian Moon, Perigean Technologies LLC, [brian@perigeantechnologies.com](mailto:brian@perigeantechnologies.com).

Thank you for time and consideration.

A reminder e-mail was sent to the same 75 on May 23, 2008:

Folks,

Thank you to those who have participated in the Survey. It will remain open through May 30. We hope to receive your responses, and encourage you to forward the Survey to others that might be interested.

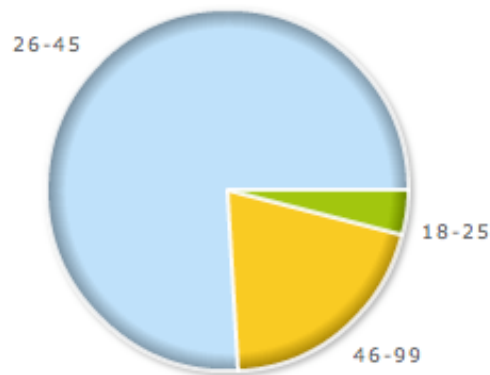
[Click this link to begin the Survey](#)

Brian

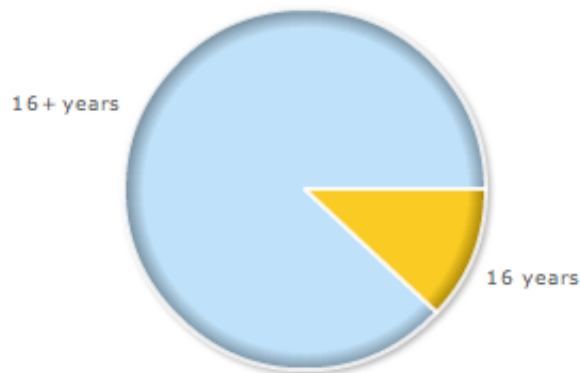
Additionally, the invitation was sent on May 19, 2008, to 61 participants in a related research effort conducted at the Naval Postgraduate School in Monterey, California.

The invitation encouraged snowball sampling. In total, 34 invited respondents completed the Survey, with 25 providing demographic data. Of the 34, 31 were from the US, and three were from Israel, as indicated by their IP addresses tracked by PollDaddy.com. Of the 25 demographic respondents, 24 were from the US, and one from Israel. The inclusion of the Israeli respondents demonstrates the snowball sample – none were included in the invitations.

### Age



### Education



Occupations and Industries

Occupations	Industries
Director, Business Solutions	IT
Mil. Officer and Strategic Leadership and organization development consultant	Business development and Military
Consultant	Government
Consultant, business owner	Intelligence/defense
Consultant	Consulting
Director, Client Consulting	Market Research
Marketing Research	Marketing Research
Client consulting	Market Research
Defense Intelligence Senior Leader	Government
Researcher	Government Contracting
Scientist	Defense
Naval Officer	Military (Naval Surface Warfare)
United States Navy	United States Navy
Military officer	Government
Consultant	Consulting
Armor Officer	US Army
Research psychologist	Military contracting
Systems Analyst	Telecommunications
Analyst, manager	Government Contracting
Consultant	Consulting for organizations in different industries
Special Agent	Government
U. S. Marine Major	Military
Teacher	College of Education
Military Officer	Defense
Navy pilot turned OR student	Military

Frequency of presentation tasking

