

Workshop:

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Scenarios, Communication, Mindmaps ...

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Urban Transportation Planning

MIT Course 1.252j/11.540j

Fall 2006

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- Introduction from Meyer and Miller
- Forecasting ... and Scenarios
- Demographics as an example
- Communication tools
- Working with Mindmaps

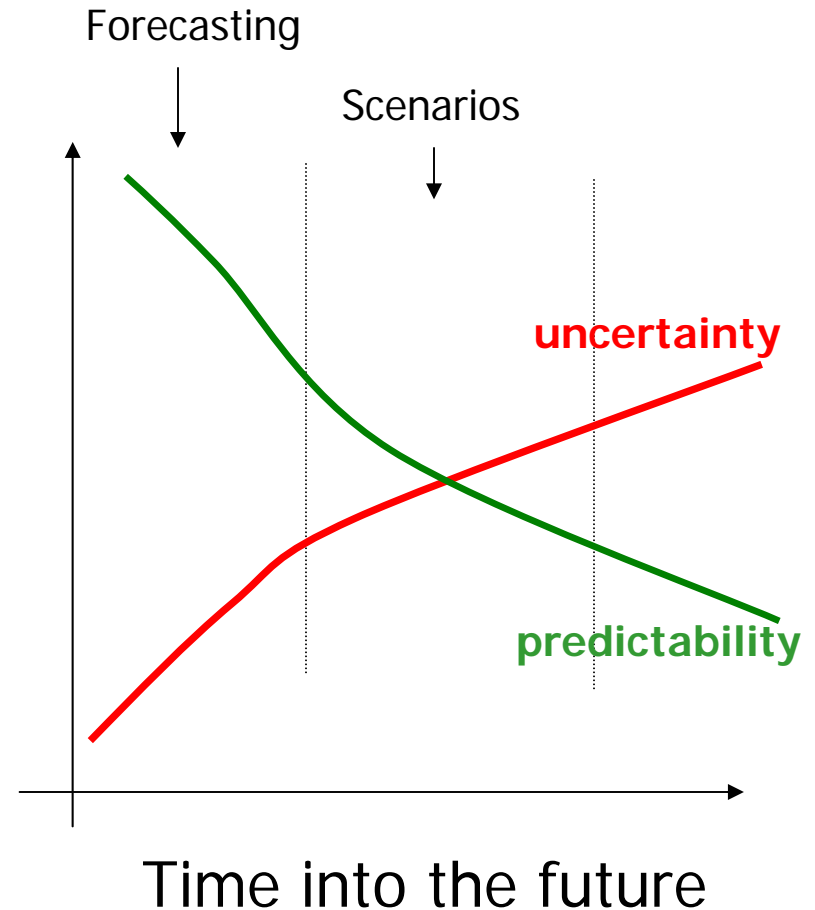
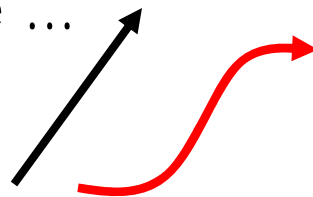
Introduction from Meyer and Miller ...

1. The world moves into the future as a result of **decisions** (or the lack of decisions), not as result of plans
2. All decisions involve the evaluation of **alternative images of the future**, and the selection of the most highly valued of feasible alternatives
3. Evaluation and decisions are influenced by the degree of **uncertainty** associated with expected consequences
4. The products of planning should be designed to increase the chance of making **better decisions**
5. The result of planning is some form of **communication** with decision makers

Models and Forecasting...

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- Forecasting:
 - Short term extrapolation: The future on the basis of the past
 - Applicable to slow incremental change
 - We tend to believe that today's status quo will continue for ever
 - We often ignore ...



- A conceptual description of the future based on cause and effect
- Invent and analyze **several stories** of equally plausible futures to bring forward surprises and unexpected leaps of understanding
- Goal is not to create a future, nor to choose the most probable one, but **to make strategic decisions that will be sound (or *robust*) under all plausible futures**

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Scenarios

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"Scenarios transform information into perceptions... It is a creative experience that generates an 'Aha!' ... and leads to strategic insights beyond the mind's previous reach."

Pierre Wack GBN

Reading on Scenarios

- “The Art of the Long View” by Peter Schwartz
- “Scenarios: The Art of Strategic Conversation” by Kees van der Heijden

Both authors work for the Global Business Network (www.gbn.com) and come from the Shell Planning Group

Scenarios: Why?

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- History is a continuum of *pattern breaks*
- We react to uncertainty through denial
(that is why a quantitative model is so reassuring!)
- Mental models, and myths, control what you do and keep you from raising the *right* questions
- We cannot predict the future with certainty
- By providing alternative images of the future:
 - We go from facts into perceptions, and,
 - Open multiple perspectives
- Approach: *Suspend disbelief in a story long enough to appreciate its potential impact*

Scenarios: How?

- Examine the environment in which your actions will take place and see how those actions will fit in the prevailing forces, trends, attitudes and influences
- Identify driving forces and critical uncertainties
- Challenge prevailing mental modes and be creative about the future of critical variables
- Rehearse the implications

Scenarios: Stages

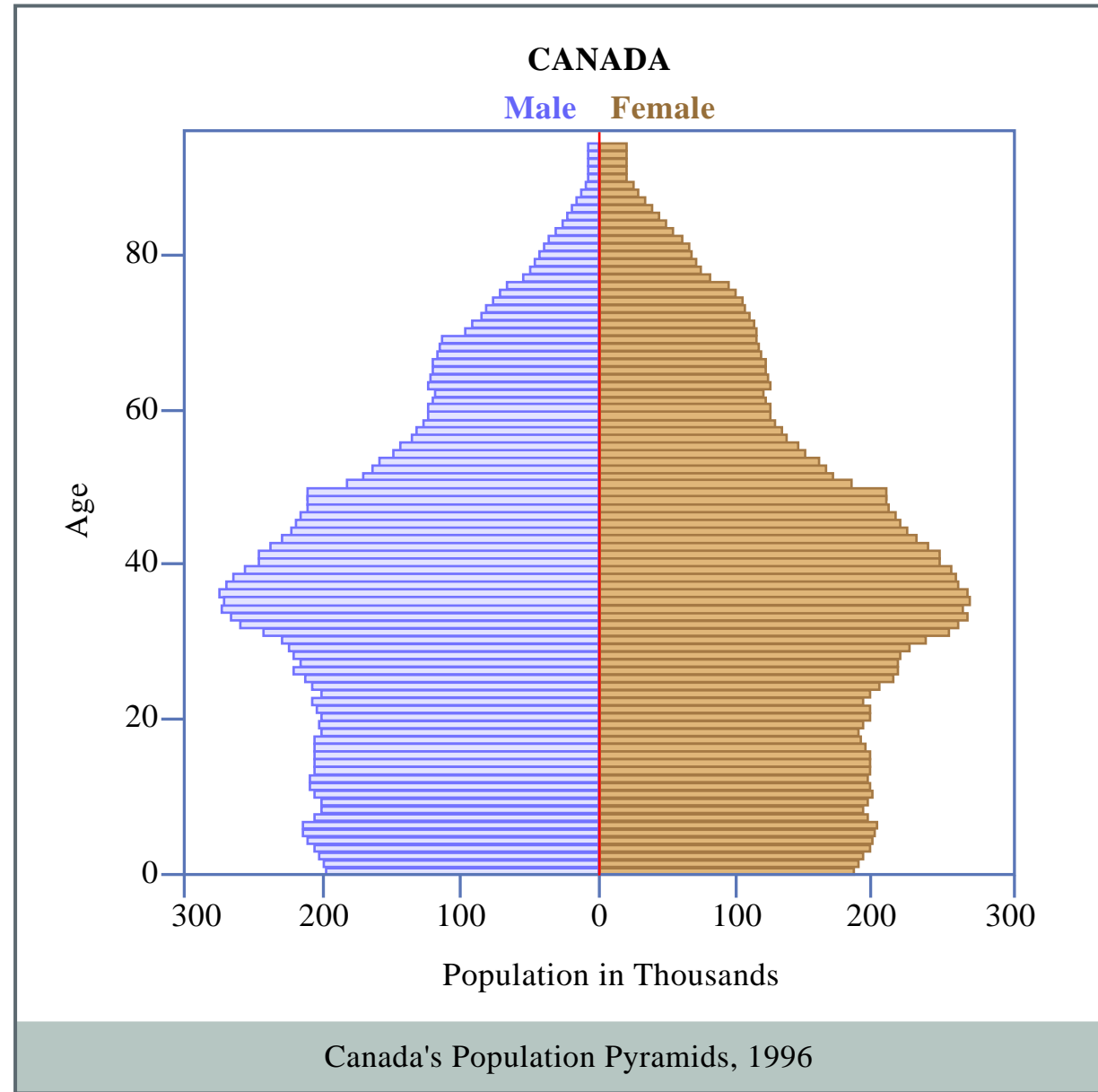
1. Identify focal issue or decision (ie Global warming)
2. Identify driving forces in the local environment
3. Identify driving forces in the macro environment
4. Rank the importance and uncertainty of each
5. Select scenario logics (so as to tell a story)
6. Flesh-out the scenario in terms of driving forces
7. Analyze implications
8. Define leading indicators for monitoring

- Goal:
 - Required decisions under each scenario? Vulnerabilities?
Can we control the key driving forces?...
- Good scenarios should be plausible, but also surprising by breaking old stereotypes
- Do not assign probabilities to each scenario...
- ... But give a name to each scenario
- A total of 3-4 scenarios: Not just two extremes plus a *probable* one. Good to have a wildcard

Demographics as an example

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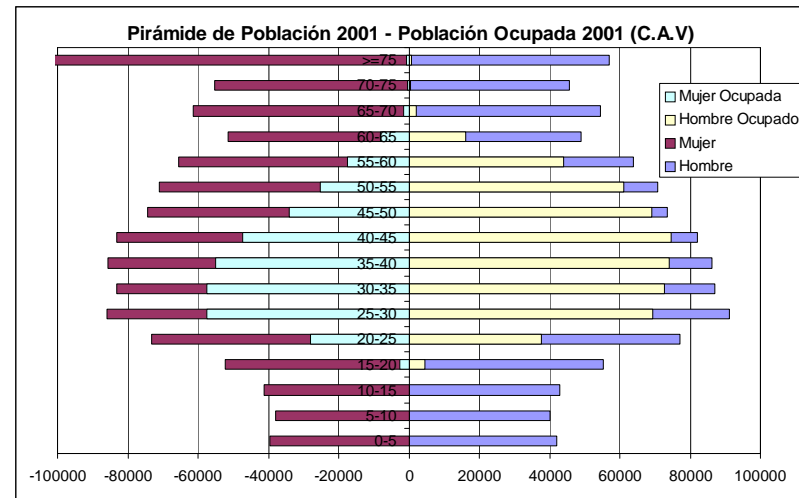
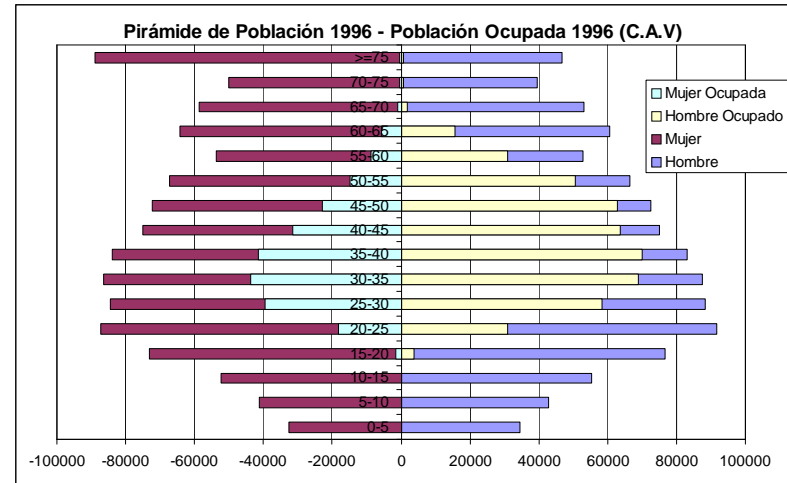
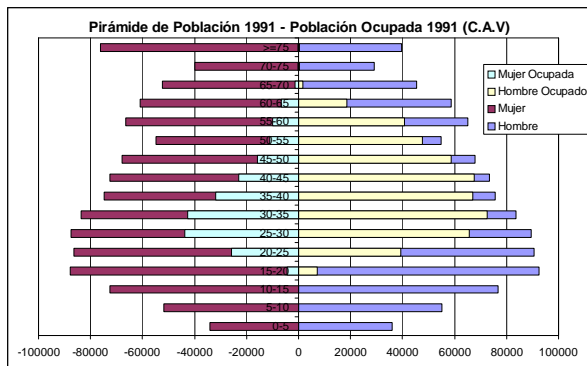
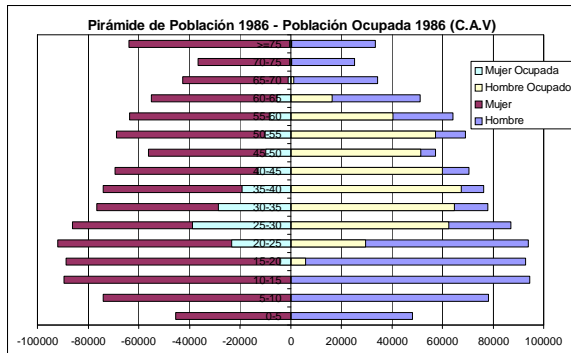
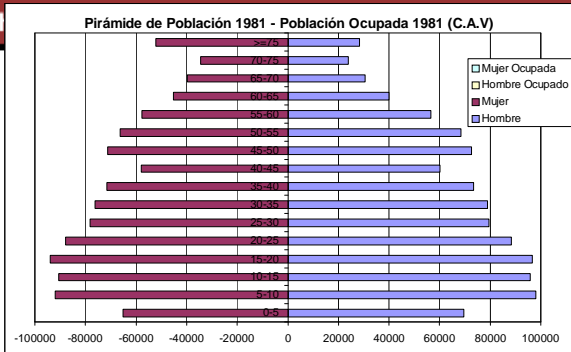
- Fertility rate:
 - Avg no. of children born to women over their lifetime
- Birth rate:
 - Total no of births divided by the size of the population
- Canada claims a low fertility rate (1.7) but a high birth rate





Demographics: What do you make of this?

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- Is age a good predictor for:

- Real estate?
- Transit use?
- Use of hard drugs?

- If age is a good predictor, then:

- Establish number of people in each age group
- Define probability for each age group, of participation in a given behavior or activity

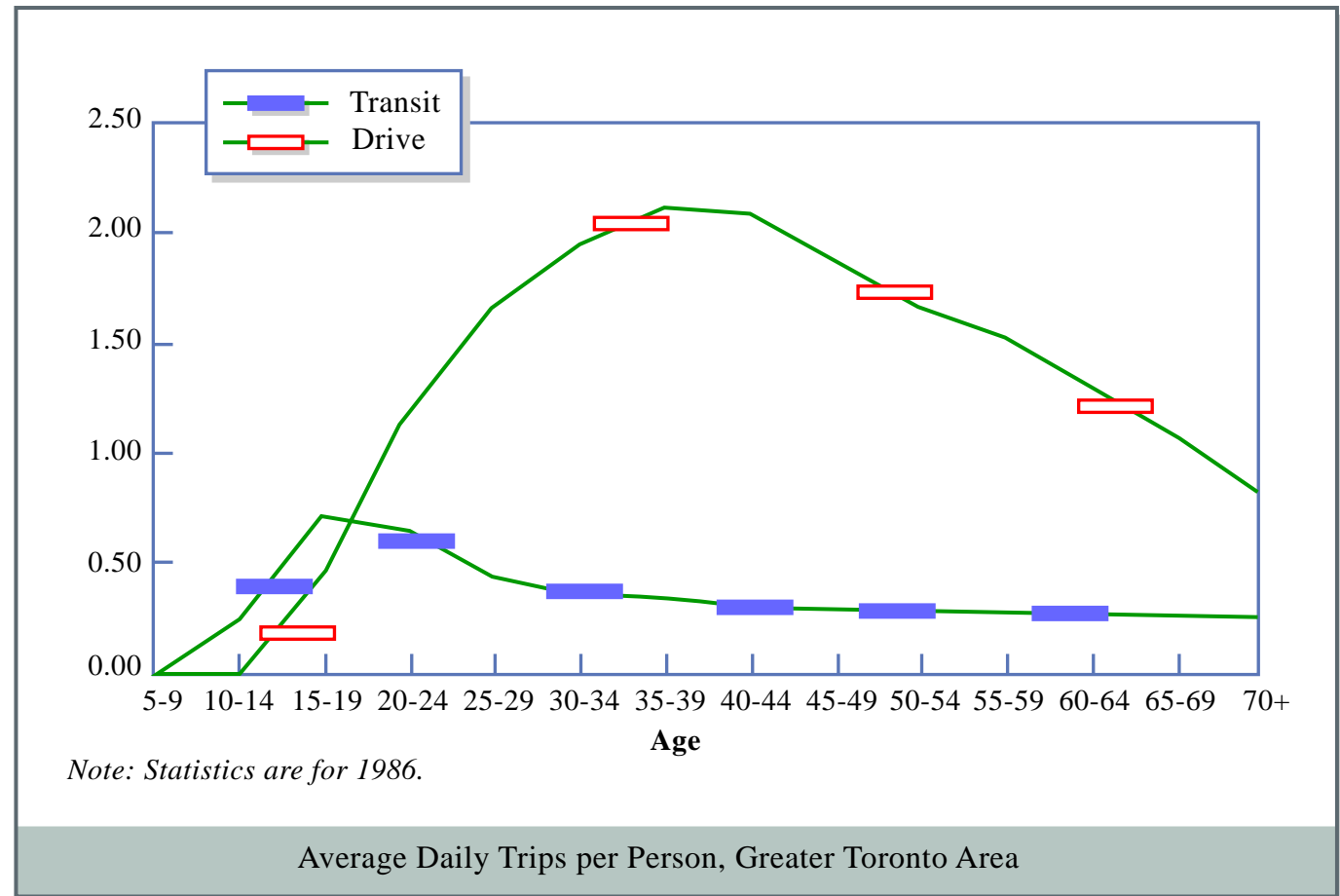


Figure by MIT OCW.

A 19 yr old has little money but plenty of time to wait for the bus

- According to Professor David K. Foot (“Boom, Bust and Echo”), future scenarios entail some certainty: *In 10 yrs, we will all be 10 yrs older*
- Demographics, not only predictable, but inevitable: *The most powerful, yet underutilized tool, to understand the past and foretell the future*
- Age is a good predictor of behavior... and therefore, a good forecasting tool

Communication Tools

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- Transportation Policy depends to a great extent on two-way communications:
 - Policy analysts ↔ elected officials
 - Elected officials ↔ other politicians
 - Elected officials ↔ mass media
 - Public at large ↔ elected officials
 - ↔
- But impact of a message is based on:
 - words (7%),
 - how words are said (38%), and,
 - non verbal clues (55%)

Communication Tools

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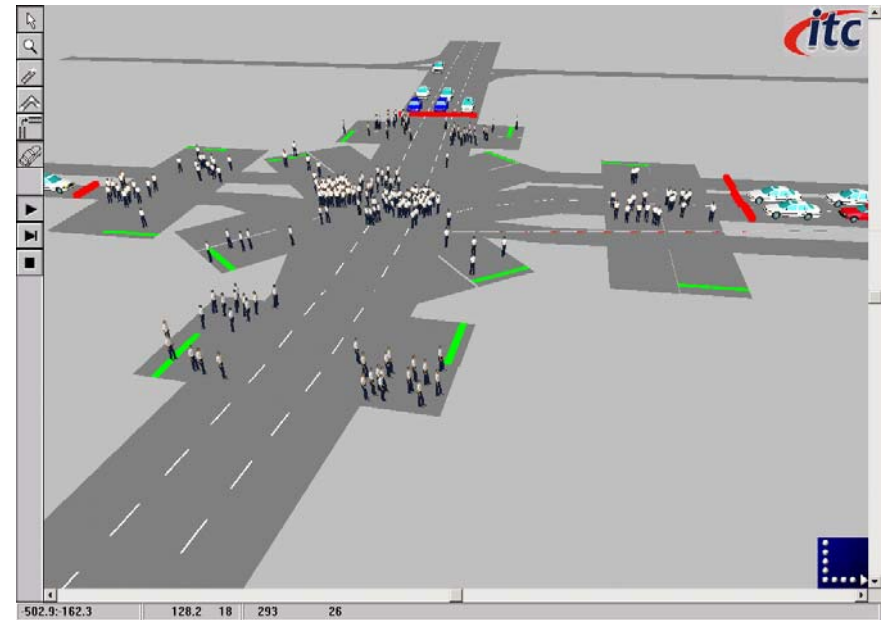
	learned	used	taught
Listening	1st	Most (45%)	Least
Speaking	2nd	Next most (30%)	Next least
Reading	3rd	Next least (16%)	Next most
Writing	4th	Least (9%)	Most

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Communication Tools

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“The Visual Display of Quantitative Information” by Edward R. Tufte plus the two follow-up books – a must-read reference



How Do you Visualize Change???

Remember that simulations could be critical

Other tools of the trade

- **Creativity:** Lateral thinking, to think-out-of-the-box, thinkertoys...

Out-of-the-box thinkers

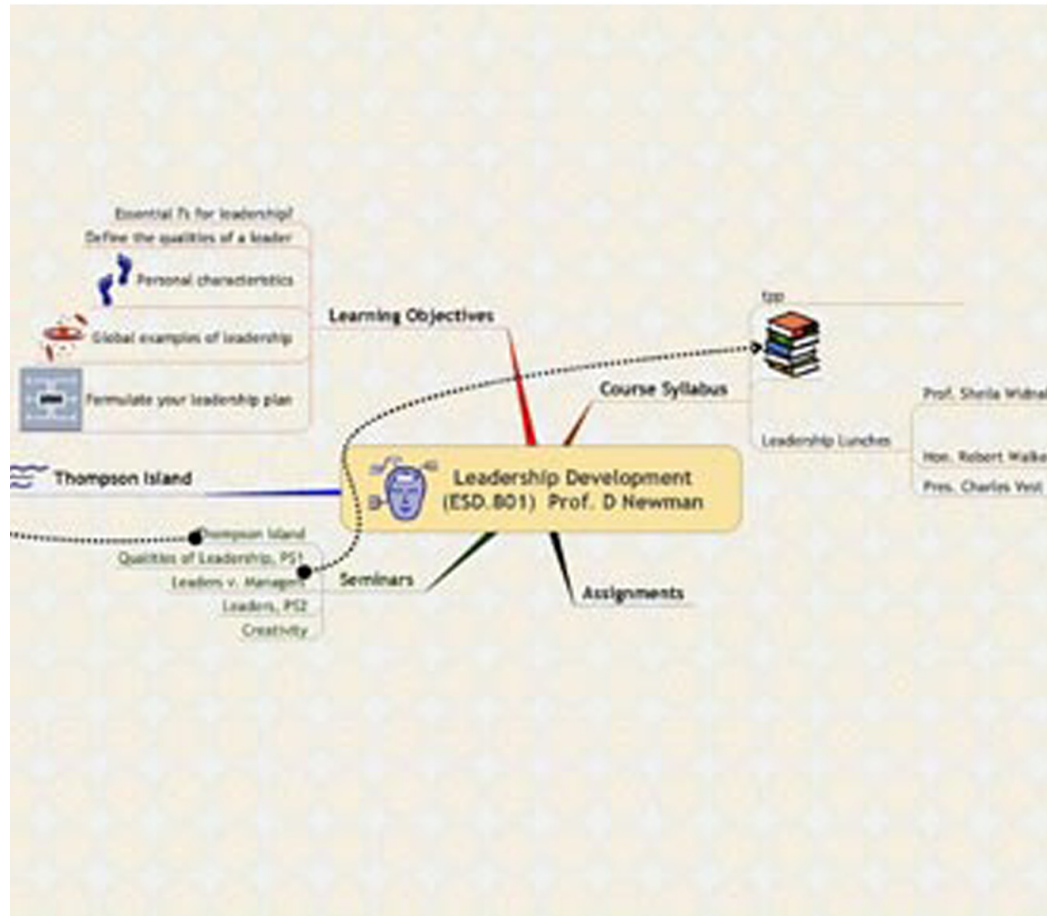
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- Edward de Bono:
 - Thinking Tools
 - Six thinking hats
 - Lateral Thinking
- Michael Michalko:
 - Cracking Creativity
 - ThinkerToys
- Many others
 - The intelligence trap
 - The Everest effect
 - Plus.Minus.Interesting.
 - C.A.F. consider all factors
 - O.P.V. Other people view
 - To look for Alternatives – beyond the obvious
 - Analyze Consequences
 - Problem Solving and Lateral Thinking
 - Provocations

MIT Mindmapping

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See “MindMapping” by Tony Buzan et al



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Mindmapping

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- You see what you know and where the gaps are
- Clears your mind of mental clutter
- It works well for group brainstorming

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Mindmapping

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- A whole-brain alternative to linear thinking
- **Retain both the overall picture and the details**
- Promote associations

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Mindmapping

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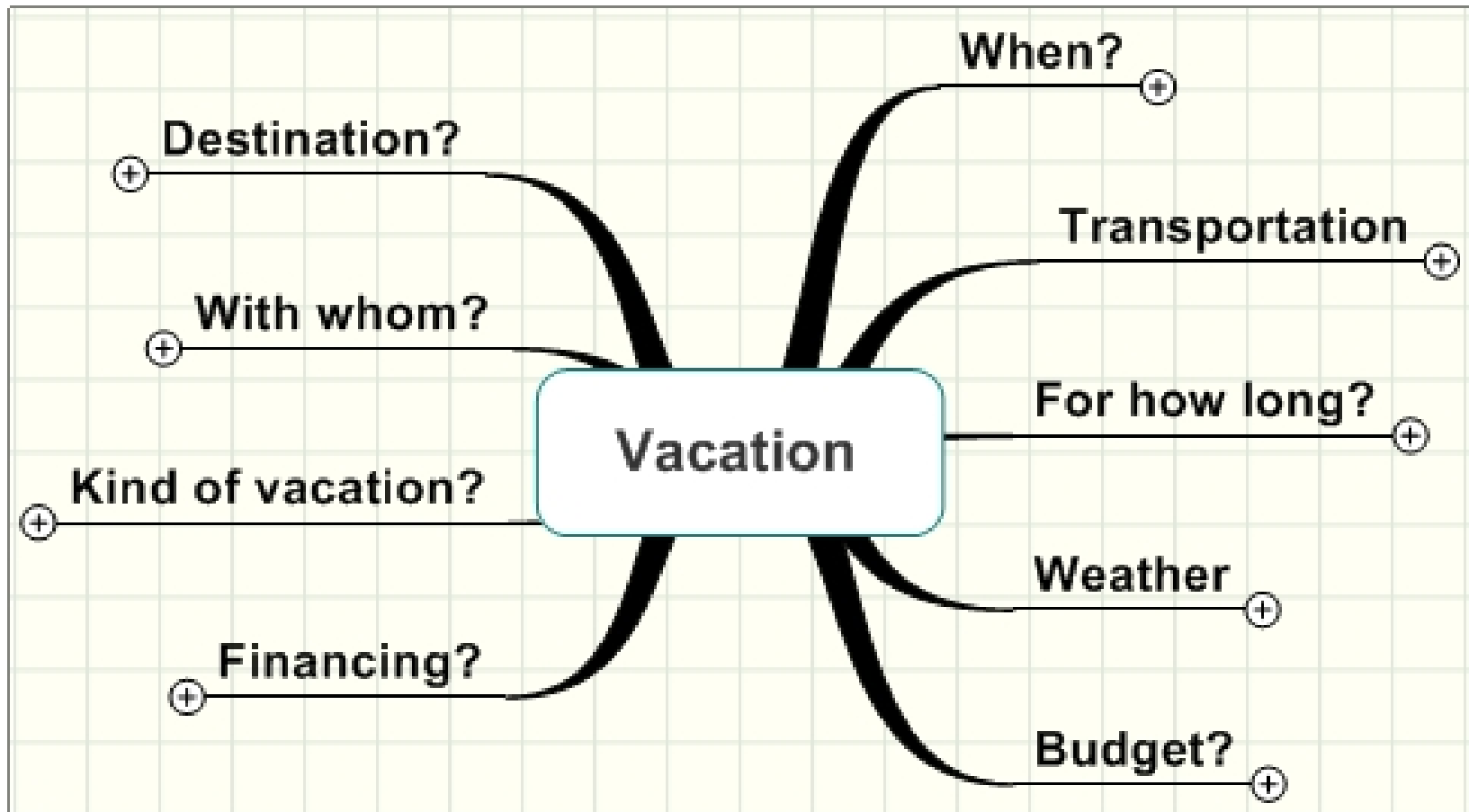
Mindmapping

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- Let us do a joint MindMap

Mind-Mapping

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Mind-Mapping

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