# **Template for Reading and Taking Notes on Research Articles (Limit yourself to 1 page of notes!)**

**REFERENCE FOR THE ARTICLE KEY TAKEAWAY**

**Introduction:** *What is the topic of this paper? Why is this study important?*

* 2D vs 3D graphs on paper/computer for novice and experienced managers
* Examines factors that may be important to the design of graphics for decision making

**Literature Review:** *What is already known about this topic? What do we need to know about this topic?*

* Differences in novice vs. experts (Barfield 1986)
* 3D scatterplots more accurate and faster, but 3D block diagrams were did not improve upon 2D tabular reports (Lee and MacLachian 1986)
* Recall for 3D perspective graphs was not better than 2D tabular displays (Watson and Driver 1983)

**Theoretical Framework:** *Is this study a test of a specific theory or hypothesis? Is the methodology of the study guided by a specific theory?*

* Faster and more accurate with 3D

**Methods:**

*What type of data were collected and how were these data collected?*

* Solution times, response accuracy, effectiveness

*Sample (unit of analysis, size and key characteristics):*

* 33 subjects from graduate engineering management students and experienced managers and engineers

*How were key variables measured?*

* Solution time – from first access of graph to submission (could read problem beforehand)
* Response accuracy – estimate amount of material to ship

*How were the data analyzed?*

* 2x2x2x2 factorial

**Results:** *What were the most important findings? Was the theory/hypothesis supported or not? Were there any surprising/unexpected findings?*

* 2D computer graphs faster than any others
* 2D graphs easier to use than 3D graphs
* 3D computer > 2D paper > 2D computer > 3D paper (percentage of maximum profit)
* Correlation between solution time and 2D menu access / 3D menu access not significant, nor was

**Conclusions:** *What are the implications of this study for policy and for research? What were the limitations of the study? What should future researchers do?*

* Problem solving performance was affected by dimensionality of the graph, mode of presentation, and user background
* 2D graphs were easier to use as reported by users
* 3D graphs more efficient in terms of profit