# The GRAFIC Framework: Graphics-Relevant Advice to Facilitate Information Communication

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## Background

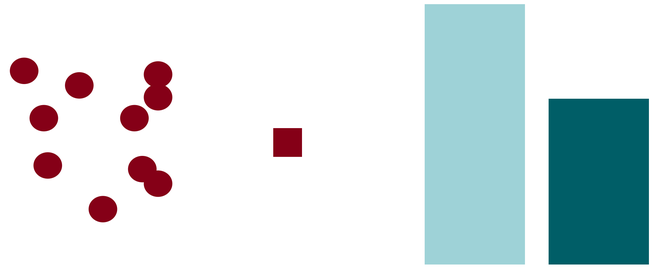
- Data visualization is a predominant way people consume information in the world today; however, its definition rarely includes consumption.
- There are many creation recommendations that aim to enhance communication, few of which are grounded in evidence or examine the consumption process.

**It is crucial to understand the component processes underlying the consumption of data visualization.**

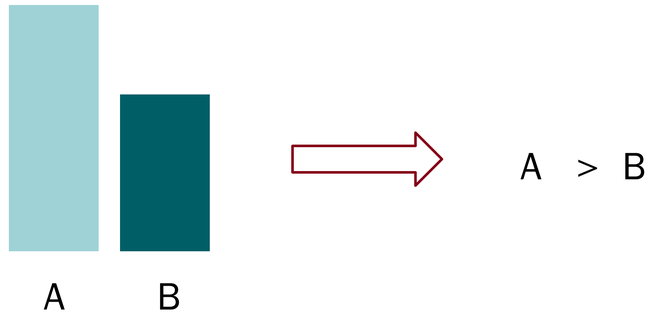
## Proposed Framework

We draw on research in cognitive science, specifically **visual perception** and **discourse comprehension**, to propose a preliminary framework that dictates the levels of processing required to make sense of visualizations.

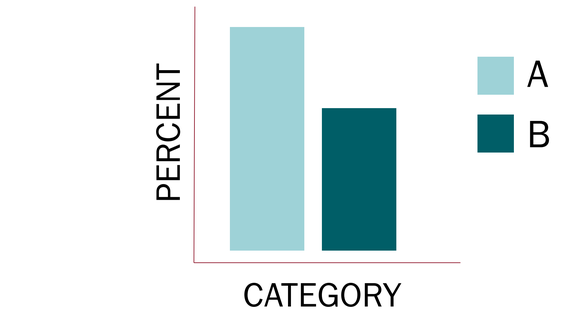
**Visual Perception**
(e.g. Peterson, 2001; Rock, 1983)



**Preattentive Features**
(e.g. Treisman, 1985; Ware, 2004; Wolfe & Utochkin, 2019)




**Symbolic Processing**
(e.g. Barsalou, 1999; Winn, 1994)




**Integration**
(e.g. Reed, 2019; Reed, 2020; Tversky, 2005)


**Contextualization**
(e.g. Hommel, et al, 2000; Zachary, et al, 2013)

## Ongoing Work

- Map existing creation recommendations to cognitive science literature with the ultimate goal of creating one adaptable set of evidence-based recommendations.
- Multimodal data collection within a classroom (video, screen recordings, student artifacts) to understand student consumption of data visualization.
  - Intro data visualization course is currently being adjusted with plans to collect data in Fall '24.

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