## **EST. 1870**

# Tips for Creating Your Scientific Poster Scabnet Fall Webinar

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# **Creating a Scientific Poster**

## **Tips You Can Use**

Work with your advisor/supervisor, colleagues, committee et al.

## Worth the effort!

A great way to learn, get feedback, and network

PPT slides available. Stopping points for questions.

# Your poster is not a research article

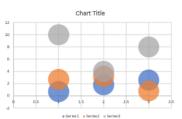
Rethink the format and content, and how you present your info within the poster size

- Make it easy to skim
- Encourage conversations

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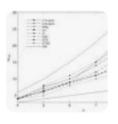
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# **Creating a Scientific Poster**

Establishing Your Core Message

5 Gather Feedback

2 Poster "Essentials"

6 Your Core Message

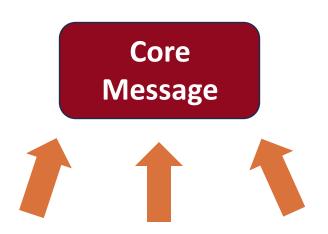
Tips for Readability and Design

4 Communicating Data

## 1 - Establish Your Core Message

# Make it obvious (to your reader)

- Everything on your poster should support your core message
- Core message might be your title!



## 2 - Poster "Essentials"

- ✓ Read the conference poster guidelines, note deadlines <a href="mailto:scabusa.org/forum23/submit">scabusa.org/forum23/submit</a>
- ✓ Powerpoint or Google Slides check the size (PPT > Design menu) <a href="mailto:scabusa.org/pdfs/Poster\_Guidelines.pdf">scabusa.org/pdfs/Poster\_Guidelines.pdf</a>
- ✓ Your university or organization may have a poster template
  I recommend using the template
  Don't modify the template (much)

# 3 – Tips for Readability and Design

# Your poster is not a research article

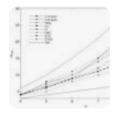
Rethink the format and content, and how you present your info within the poster size

## > Make it easy to skim

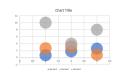
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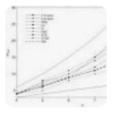


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## The Importance of White Space

BY JASON FORREST, CREATIVE DIRECTOR



Image courtesy of 生活童話 (Flickr)

www.digital.ink/blog/importance-white-space/

## White space makes the poster easier to read

## White Space =

- Margins
- Length of paragraphs
- Space between lines
- Space around figures and images

## A Bad use of Space

What about this makes you think anyone would read it?

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## A Better use of Space

Doesn't this make you feel less panicky?

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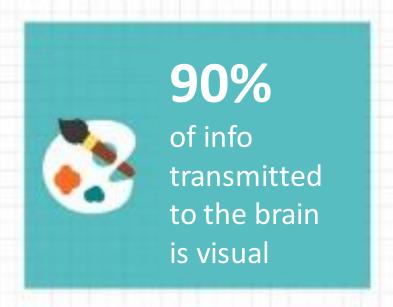
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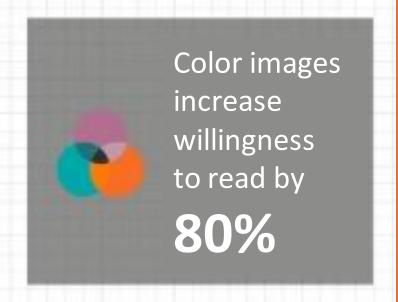
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# DID YOU KNOW?

Only
20%
of text is remembered





## **Infographics**

White space helps make the poster easier to read. This can be done by avoiding large blocks of text. You can also add paragraph breaks, add space after titles and subtitles, increase the line spacing from single space to 1.05 space (the Paragraph menu in PPT or Word), use bullet points, and edit your content to remove unnecessary words.

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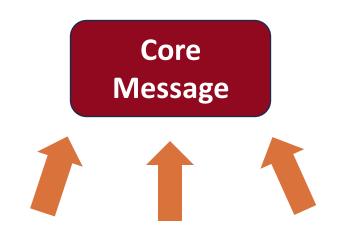
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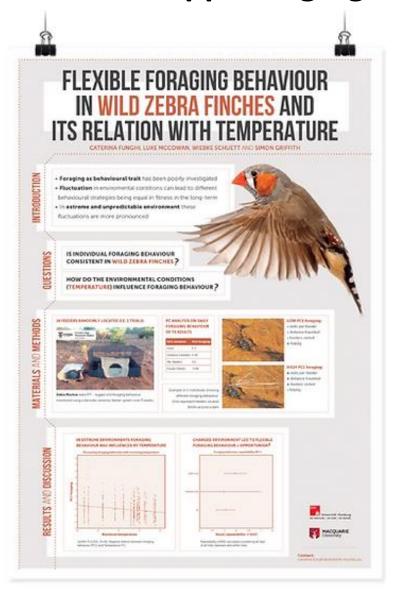
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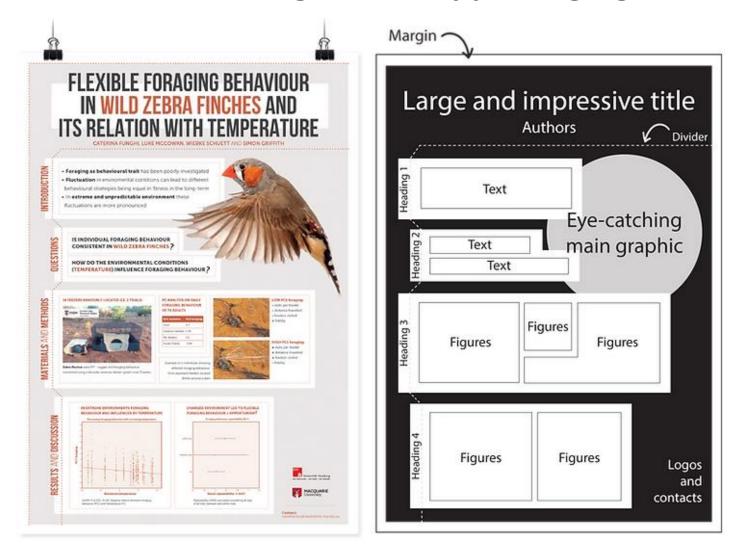
- Avoid large blocks of text
  - Add paragraph breaks
  - Add space after titles and subtitles
  - Increase the line spacing (Paragraph menu) Word)
  - Use bullet points, edit and remove unnecessary words.



## **Example format: some text with supporting figures and images**



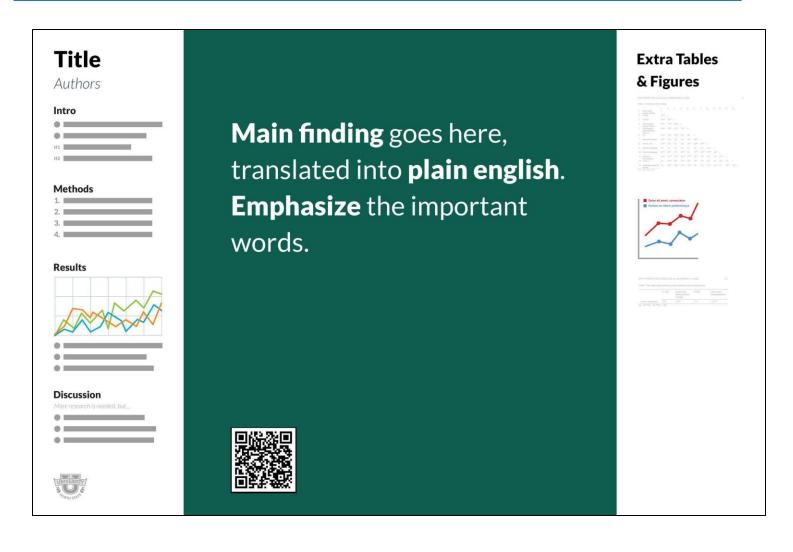
## Example format: main message with supporting figures, some text



by Caterina Funghi

## Poster trend: main message takes center stage

https://twitter.com/mikemorrison/status/1110191245035479041?lang=en

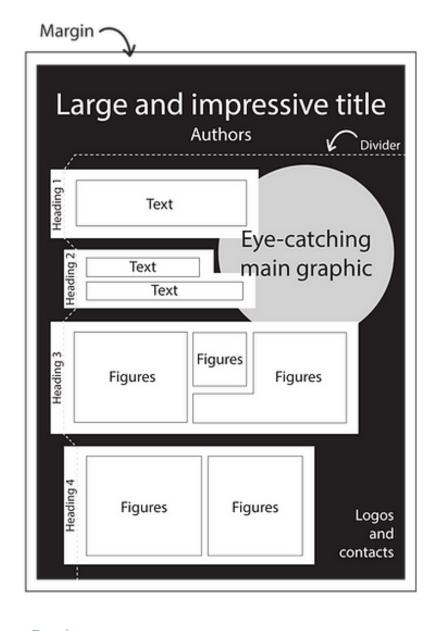


Title is in large print and conveys the poster content

Eye-catching image to grab attention

\_\_\_\_\_

The layout has room for some text and selected images and figures



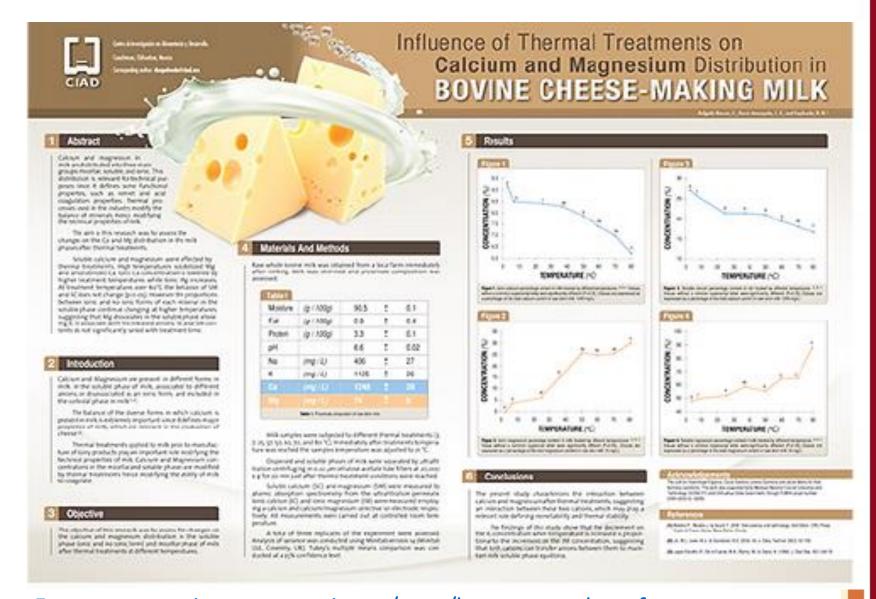
na Funghi

Another example from Animate **Your Science** 



Eye-catching visual

> More text and figures



From: www.animateyour.science/post/best-examples-ofscientific-posters

# You can also use illustrations to communicate your research

#### DISEASE CONTROL

## HOW PLANT DISEASES SPREAD

Nurseries should be aware of the sources of pathogens for each crop they grow and diligently work to eliminate those sources of disease to the greatest extent possible.

#### AIR

Diseases: Powdery mildew, rust

The spores of powdery mildew fungl, rust fungl, and others can be carried by air currents for long distances outdoors, infected plants in nearby gardens and forests can supply enormous numbers of spores.

What to do: Eliminate non-crop plants [like weeds] that could harbor pathogens from within and around the nursery.

#### WATER

Diseases: Phytophthora and Pythlum

Surface water supplies contain Pythlum in the bottom sediment. Some also contain Phytophthora in the sediment as well as free in the water.

What to do: Avoid pumping bot-

#### PLANT TO PLANT

Diseases: Pine gall rust, cedarquince rust, and vascular wilt diseases such as Verticilium wilt

Most viruses only survive in living plant cells, and rusts must pass from living plants to other living plants or they will die.

What to do: Inspect purchased material carefully as soon after arrival as possible. If inspection is put off until the plants have been in the nursery for several months, it is not possible

> the plants or moved to them from sources within your operation. Train your employees to look for problems. If you find that you are receiving infected seedlings or young transplants, change suppliers.

to determine whether the

pathogens accompanied

tom sediment from water supplies into the irrigation system. If Phytophthora is an ongoing problem in your nursery, your water source should be tested for that fungus. This is particularly true if you recycle water within the nursery.



### SOIL

Diseases: Cylindrocladium, Pythium, Phytophthora, Fusariu Rhizoctonia, Thielaviopsis, and crown gall bacteria

When containerized nursery crops

are potted in a mix containing these pathogens, the pathogens are stimulated into activity by nutrients that leak from the plants' roots and disease may begin.

What to do: Use a potting mix that has been treated to kill plant pathogens or a solless mix purchased with the assurance of being free of pathogens. It should be stored on a clean surface, moved with clean implements to a clean potting area, and placed in clean containers. Don't place containers directly on the ground. Use a plastic sheet, cover it with 4 to 6 inches of coarse gravel or small stones. This keeps containers away from underlying and possibly contaminated soil.

# For Readability

## Suggestions

- Title: 80-105 point
- Subtitle 72 point
- Section Title: 45 point
- Main text: 24 point or larger

www.apsnet.org/meetings/annual/meetingarchives/2010Annua l/callpapers/Documents/CreatePosterPowerPoint.pdf



# More tips

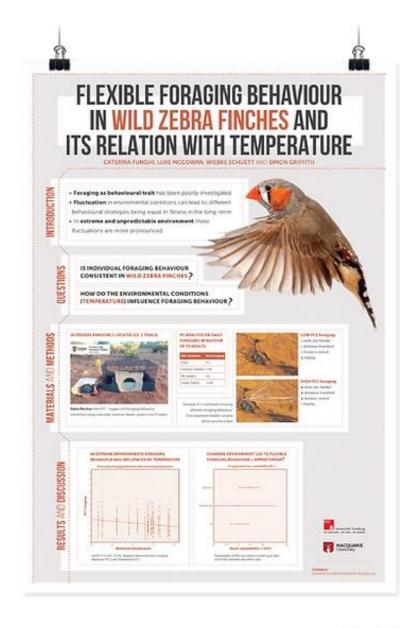
- Organize content into sections
  - Justify columns of text to the left

## Sources

www.scientifica.uk.com/neurowire/how-to-make-your-scientific-posters-stand-out

Delineate sections with clear headings, subheadings

Lines (vertical and horizontal) and boxes can add visual interest and help guide the reader



by Cateri



Ideal poster color palette is around 3 colors

 Your university or organization may have a color palette (Communications and Marketing units)

## Sources

www.animateyour.science/post/how-to-select-a-great-colour-scheme-for-your-scientific-poster



- Carefully select and edit the data and images to use
- Limit your poster word count to approx. 1,000 words

- Link to or provide a QR code for more details (Google docs, for example)
  - For example: Methods, Literature Cited, additional info or data

# 4 – Communicating Data

## **For Data**

# Clearly show the main purpose to your audience

What is the purpose – what are you trying to show?

Help the reader by using labels, arrows, circles, text

## Good suggestions:

www.simplifiedsciencepublishing.com/resources/how-to-make-good-graphs-and-figures-for-scientific-papers

- The title of the figure can explain the key point
- How you present the data (graph, table etc.) is important

## www.clips.edu.au/displaying-data

Before you create a graph you should consider three things:

### 1. Do you need a graph?

Sometimes results can be easily summarised in a sentence or two, or by using a simple table. If you have a large number of categories with a variety of measurements, a table may be more appropriate to neatly display results.

### 2. What types of variables do you have?

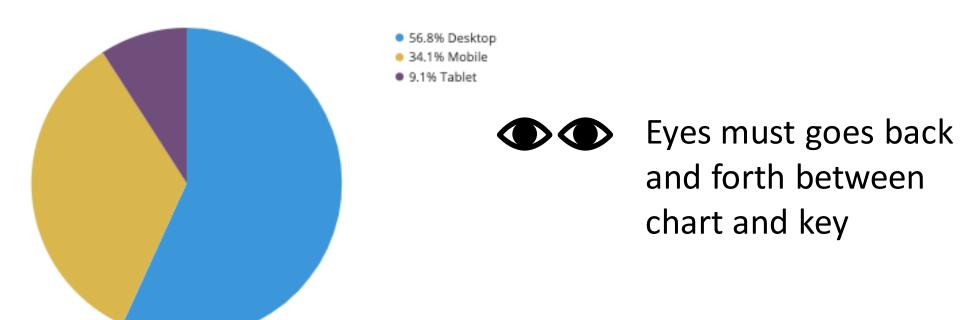
Knowing the types of variables in your data and the statistical analysis you have performed will guide you when deciding what type of graph to use.

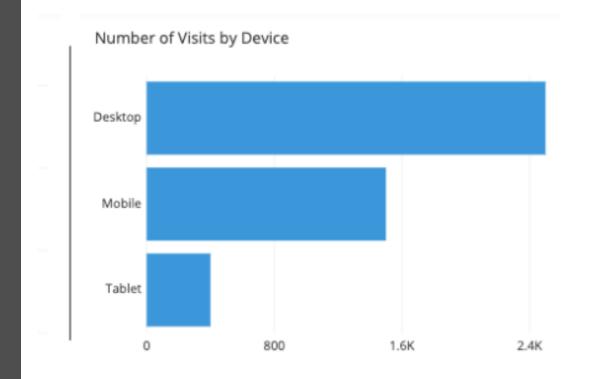
### 3. What is your message?

Graphs should clearly communicate a message to your audience. Therefore, you should only include data that will help communicate your message (while ensuring you're not misleading your audience). You should keep this message in mind when creating and formatting your graph.

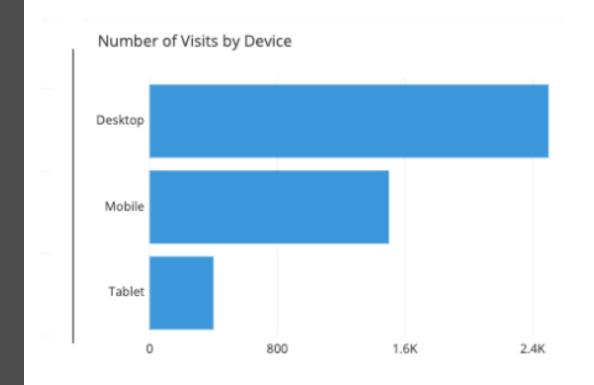
# Examples

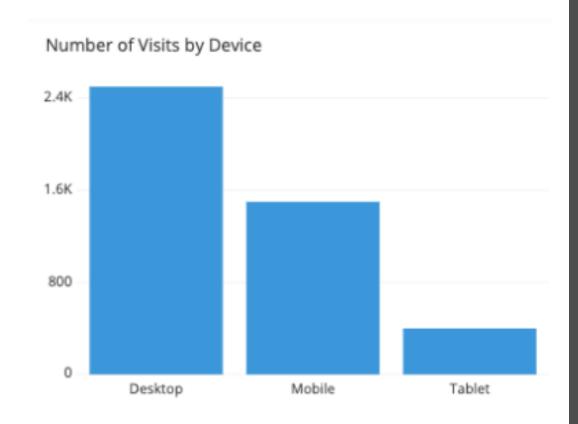
### Number of Visits by Device





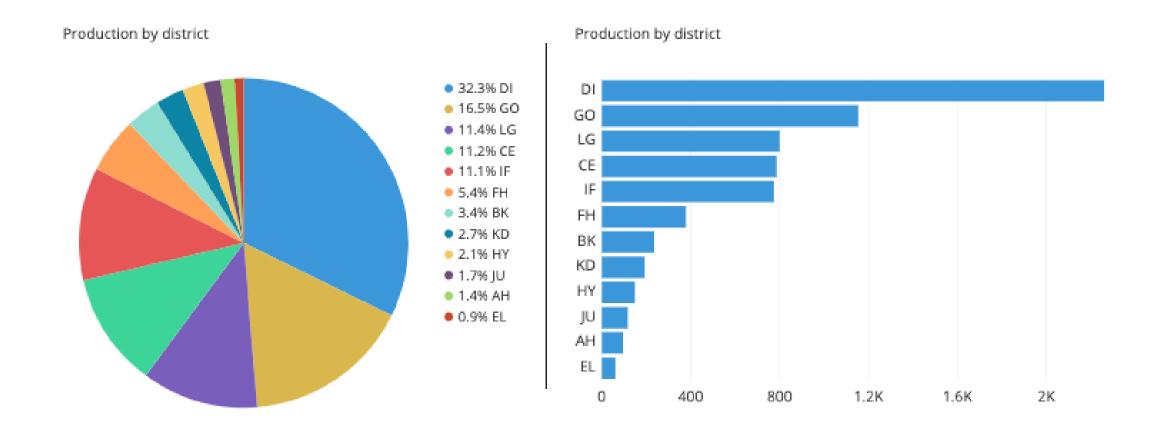
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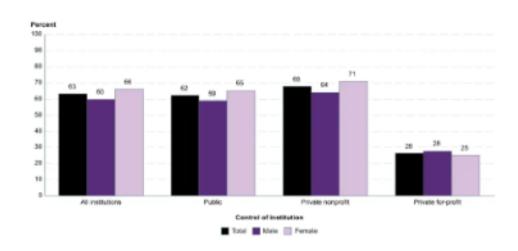
## Too many slices



- The title of the figure can explain the key point
- How you present the data (graph, table etc.) can make a difference

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2019 Graduation Rate for Bachelors Degree



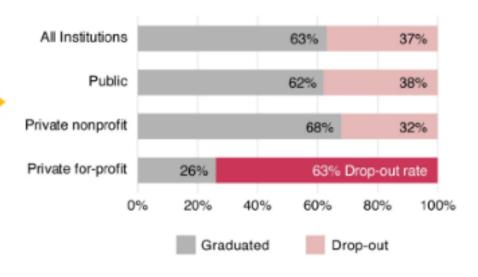
Source: National Center for Education Statistics https://nces.ed.gov/fastfacts/display.asp?id=40

#### 2019 Graduation Rate for Bachelors Degree

# Percent 100 90 880 70 60 60 50 All institutions Fublic Private nonprofit Control of institutions Total Main Main Percent

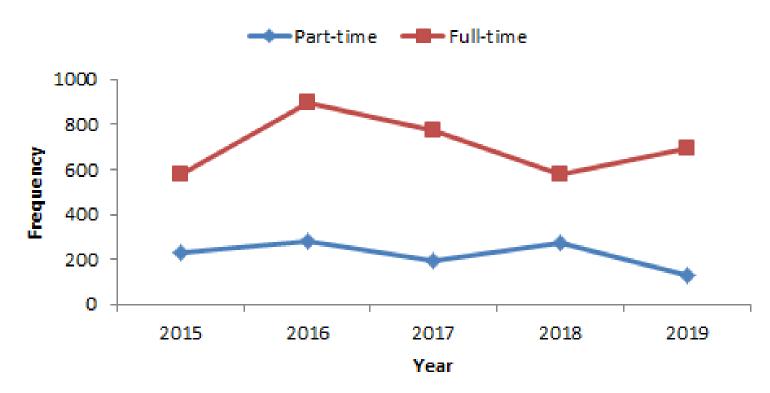
Source: National Center for Education Statistics https://nces.ed.gov/fastfacts/display.asp?id=40

#### Private For-Profit has Higher Dropout Rate



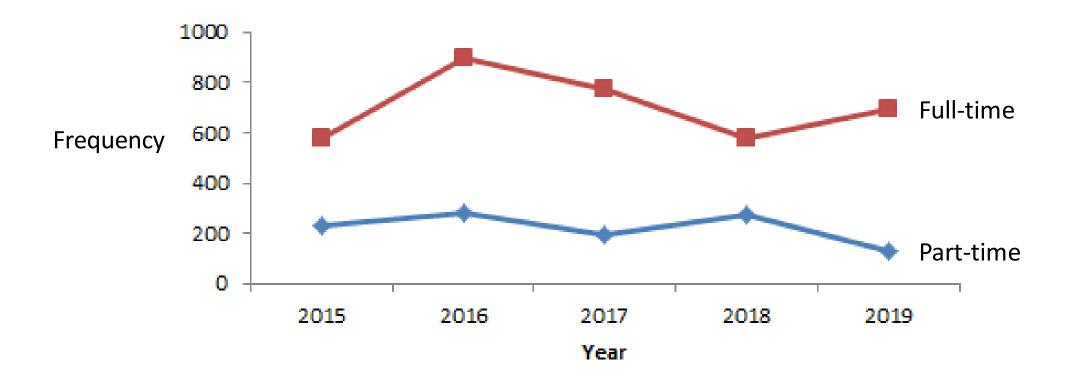
Simplify with 1-2 highly contrasting colors that highlight your main point

## Frequency of Students



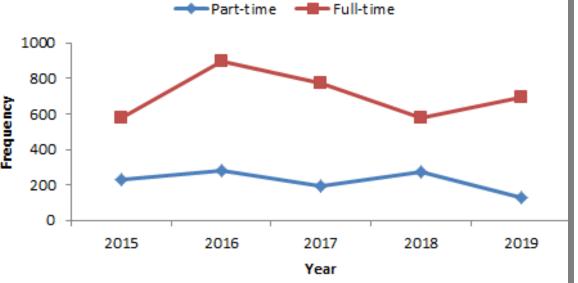
www.formpl.us/resources/graph-chart/line/

## Part-time students are a small percentage at This School



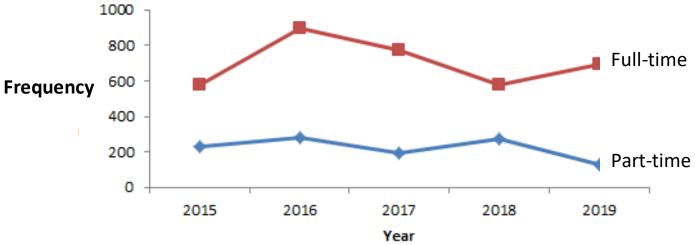
Before

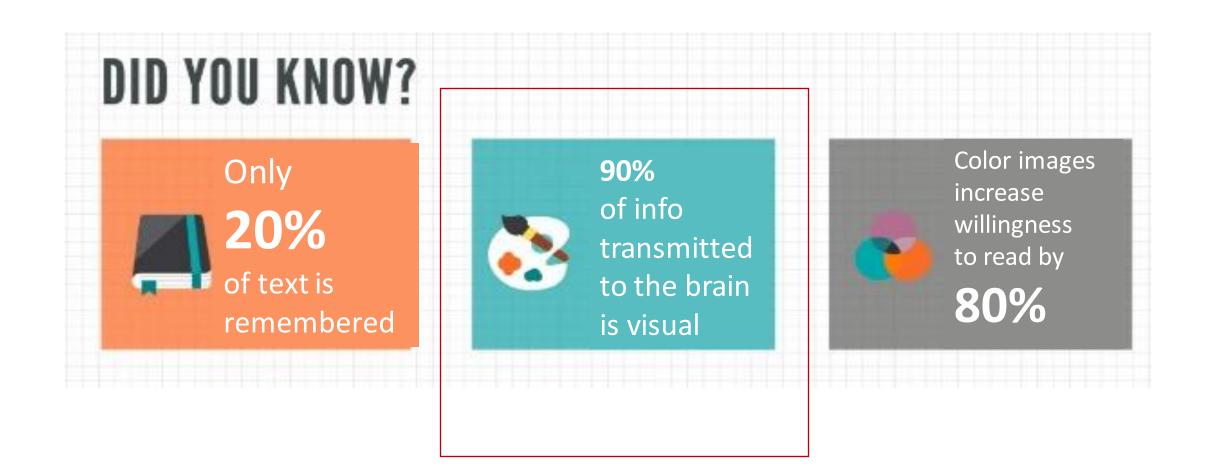
## **Frequency of Students**



After

## Part-time students are a small percentage at This School





## **Infographics**

Icons: Powerpoint, Microsoft

Good resource

www.biorender.com

Create Professional Science Figures Icon library

Others? Share in chat

# **8 COMMON TYPES OF INFOGRAPHICS**



THE VISUAL
ARTICLE
A long piece of
writing made
more visual

Search

Visual Abstract or Graphical Abstract

## JAMA Neurology Featured Visual Abstracts

jamanetwork.com/pages/visual-abstracts

## **JAMA Neurology**

#### RCT: General Anesthesia vs Local Anesthesia in Micoelectrode Recording-Guided Deep-Brain Stimulation for Parkinson Disease

#### POPULATION

78 Men, 32 Women



Patients with advanced Parkinson disease and motor response fluctuations

Mean (SD), 60.6 (7.7) y

#### SETTINGS/LOCATIONS



1 University hospital in Amsterdam, the Netherlands

#### INTERVENTION

110 Patients randomized



## 56 Surgery under local anesthesia

Electrode implantation in the subthalamic nuclei with microelectrode recordings and clinical tests

#### 54 Surgery under general anesthesia

Electrode implantation in the subthalamic nuclei with microelectrode recordings only

#### PRIMARY OUTCOME

Composite score of adverse effects after 6 mo based on 4 areas:

- (1) Cognitive deterioration
- (2) Period of psychosis, anxiety, or depression
- (3) Loss of professional activity
- (4) Delirium after surgery

#### **FINDINGS**

There was no difference in the composite score of adverse events between the 2 treatment groups



#### General anesthesia



#### Adverse effects

Local Anesthesia: 15 of 52 (29%) General anesthesia: 11 of 51 (22%) Odds ratio, 0.7; 95% CI, 0.3-1.7; P = .40

Holewijn RA, Verbaan D, van den Munckhof PM, et al. General Anesthesia vs Local Anesthesia in Micoelectrode Recording-Guided Deep-Brain Stimulation for Parkinson Disease: A Randomized Clinical Trial. JAMA Neurol. Published online September 7, 2021. doi:10.1001/jamaneurol.2021.2979

(DAMA

## **Key Points**

**Question** Is deep brain stimulation (DBS) surgery in Parkinson disease under general anesthesia associated with less cognitive, mood, and behavioral adverse effects than DBS under local anesthesia, while being equally effective for motor improvement?

**Findings** In this single-center randomized clinical trial including 110 patients with Parkinson disease, frame-based microelectrode-guided asleep DBS was associated with similar cognitive, mood, and behavioral adverse effects compared with awake DBS. Both groups showed equal improvement in motor function; surgery under general anesthesia was faster and less burdensome.

**Meaning** An asleep microelectrode-guided bilateral subthalamic nucleus DBS approach had similar outcomes to awake surgery; the incidence of cognitive, mood, and behavioral effects after surgery under local anesthesia was not higher than after general anesthesia in this cohort.

#### Abstract

**Importance** It is unknown if there is a difference in outcome in asleep vs awake deep brain stimulation (DBS) of the subthalamic nucleus for advanced Parkinson disease.

**Objective** To determine the difference in adverse effects concerning cognition, mood, and behavior between awake and asleep DBS favoring the asleep arm of the study.

**Design, Setting, and Participants** This study was a single-center prospective randomized open-label blinded end point clinical trial. A total of 187 persons with Parkinson disease were referred for DBS between May 2015 to March 2019. Analysis took place from January 2016 to January 2020. The primary outcome follow-up visit was conducted 6 months after DBS.

**Interventions** Bilateral subthalamic nucleus DBS was performed while the patient was asleep (under general anesthesia) in 1 study arm and awake in the other study arm. Both arms of the study used a frame-based intraoperative microelectrode recording technique to refine final target placement of the DBS lead.

**Main Outcomes and Measures** The primary outcome variable was the between-group difference in cognitive, mood, and behavioral adverse effects as measured by a composite score. The secondary outcomes included the Movement Disorders Society Unified Parkinson's Disease Rating Scale, the patient assessment of surgical burden and operative time.

Results A total of 110 patients were randomized to awake (local anesthesia; n = 56; mean [SD] age, 60.0 (7.4) years; 40 [71%] male) or to asleep (general anesthesia; n = 54; mean [SD] age, 61.3 [7.9] years; 38 [70%] male) DBS surgery. The 6-month follow-up visit was completed by 103 participants. The proportion of patients with adverse cognitive, mood, and behavioral effects on the composite score was 15 of 52 (29%) after awake and 11 of 51 (22%) after asleep DBS (odds ratio, 0.7 [95% CI, 0.3-1.7]). There was no difference in improvement in the off-medication Movement Disorders Society Unified Parkinson's Disease Rating Scale Motor Examination scores between groups (awake group: mean [SD], -27.3 [17.5] points; asleep group: mean [SD], -25.3 [14.3] points; mean difference, -2.0 [95% CI, -8.1 to 4.2]). Asleep surgery was experienced as less burdensome by patients and was 26 minutes shorter than awake surgery.

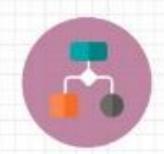
**Conclusions and Relevance** There was no difference in the primary outcome of asleep vs awake DBS. Future large randomized clinical trials should examine some of the newer asleep based DBS technologies because this study was limited to frame-based microelectrode-guided procedures.

### jamanetwork.com/journals/jamaneurology/fullarticle/2783978

# **8 COMMON TYPES OF INFOGRAPHICS**



THE VISUAL
ARTICLE
A long piece of
writing made
more visual



THE FLOWCHART
A long piece of
writing made
more visual



THE
TIMELINE
Tells a story
through the use of
chronological data



THE
LIST
Supports a claim or view through steps, rules or reasons



NUMBER
LOVE
Lots and lots
of charts, graphs
and stats



VERSUS
COMPARISON
Studies two things
in a head-to-head
comparison



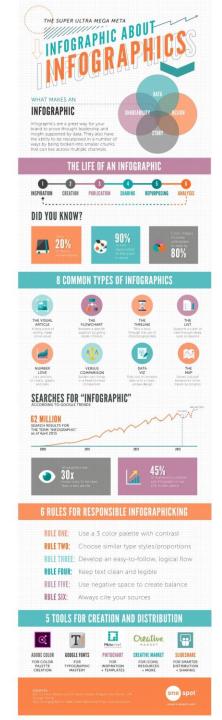
DATA
VIZ
Pulls lots of complex
data in a clean,
unique design



THE
MAP
Shows cultural/
behavioral/other
trends by location

## Lots of resources on design and Design Templates

https://www.business2community.com/infographics/infographics-essential-content-marketing-infographic-01216242



## 5 – Gather Feedback



Print out our poster on letter paper and review carefully – you'll notice things that are hard to "see" on screen



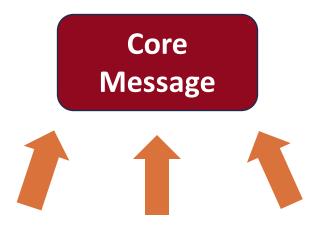
Gather feedback from experts and those unfamiliar with your research

Ask others: Is the core message clear?

Do you understand the figures, data, etc.?



\_\_ Note questions . . . they are clues to areas that may need more explanation



Review content to strengthen your supporting points



## **EST. 1870**

# WE SUSTAIN LIFE

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