



Exploring the Insights within the Global Happiness Index

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KEYWORDS — Happiness Index, Typst, Quarto

I. INTRODUCTION

i. Mapping Global Happiness Levels

Happiness levels worldwide are influenced by economic, social, psychological, and environmental factors that contribute to an individual's well-being. The World Happiness Report (WHR), initiated by the United Nations Sustainable Development Solutions Network, ranks countries annually based on self-reported happiness of their citizens. Data from the Gallup World Poll (GWP), a subset of WHR, uses the Cantril Ladder scale (0-10) to evaluate life satisfaction. Key variables influencing happiness include GDP per capita, social support, healthy life expectancy, personal freedom, generosity, and perceptions of corruption.

ii. Objective

To critically assess and enhance a static visualization of global happiness levels, identifying its strengths and weaknesses, and proposing improvements for a more interactive and insightful presentation.

II. METHODS

i. Data Sources

World Happiness Report (WHR) 2021-2023: Contains happiness scores and key variables for countries worldwide. Gallup World Poll (GWP): Provides self-reported happiness evaluations on a scale from 0 to 10.

ii. Data Understanding and Cleaning

Importing Dataset: Using readxl package to load WHR data into a dataframe.

```
data <- read_excel("DataForTable2.1.xls")
```

Summary Statistics: Assessing variables such as Country name, Year, Life Ladder, Log GDP per capita, Social support, Healthy life expectancy, Freedom to make life choices, Generosity, Perceptions of corruption, Positive affect, and Negative affect.

```
summary(data)
```

Identifying Missing Data: Filtering and filling in missing values with country-specific means.

```
data <- data %>%
  group_by(Country_name) %>%
  mutate(across(everything(), ~replace_na(., mean(., na.rm = TRUE))))
```

Filtering Relevant Years: Focusing on data from 2021 to 2023 for trend analysis.

```
data <- data %>%
  filter(year %in% c(2021, 2022, 2023))
```

iii. Critical Assessment and Proposed Improvements

1. Interactive Data Visualization:

- Implement hover-over information for detailed country data.
- Add filtering and sorting capabilities.
- Include historical comparison using a time slider.

2. Consistent Labeling and Annotations:

- Standardize labeling format for readability.
- Provide annotations explaining key variables influencing happiness.

3. Accessible Design:

- Ensure a user-friendly interface.
- Use color schemes accessible to color-blind users.

4. Data Insights and Analysis:

- Provide summaries and comparisons with relevant metrics.
- Enhance linear scale visualization for regional comparisons.

These methods aim to create an improved, interactive visualization of global happiness levels, offering better insights and user engagement.

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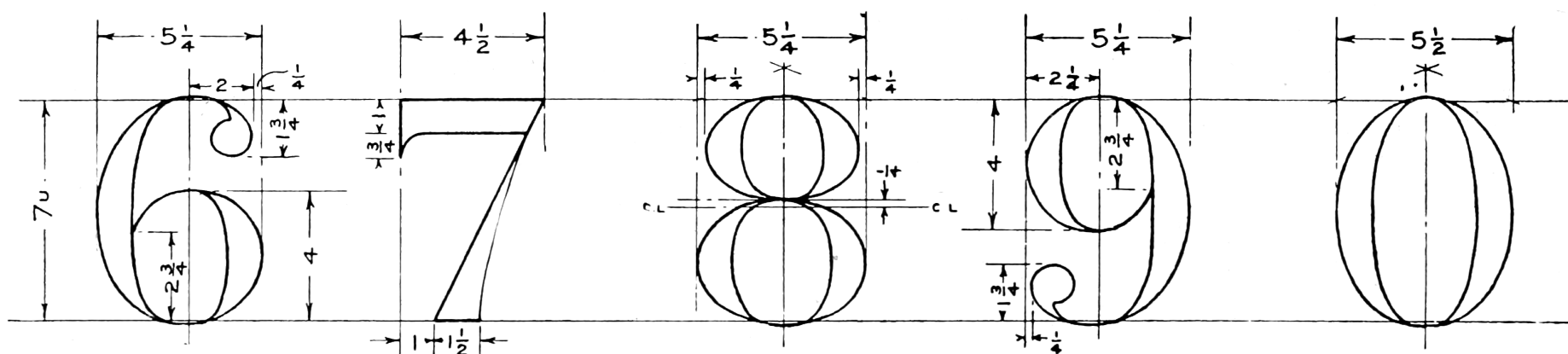
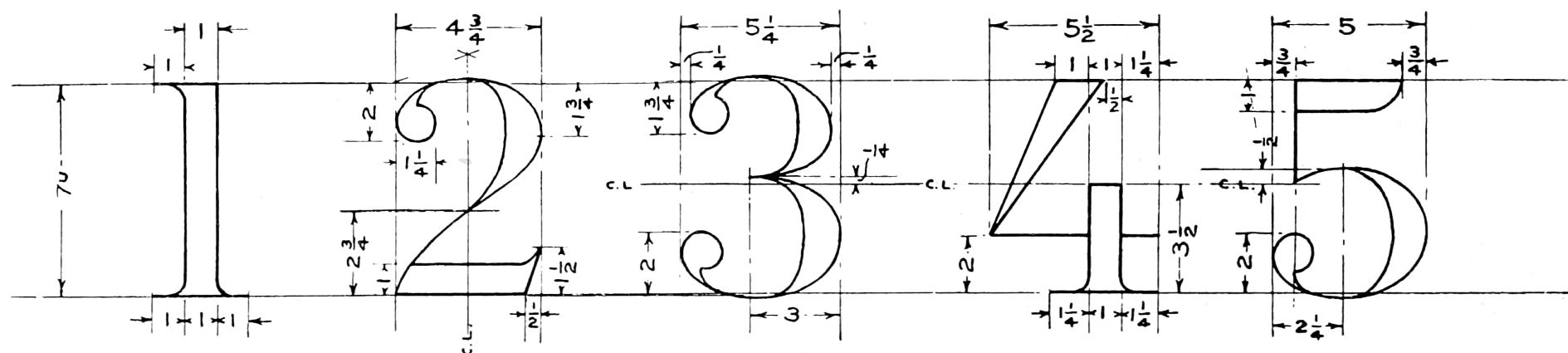


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III. FINDINGS

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IV. CONCLUSION

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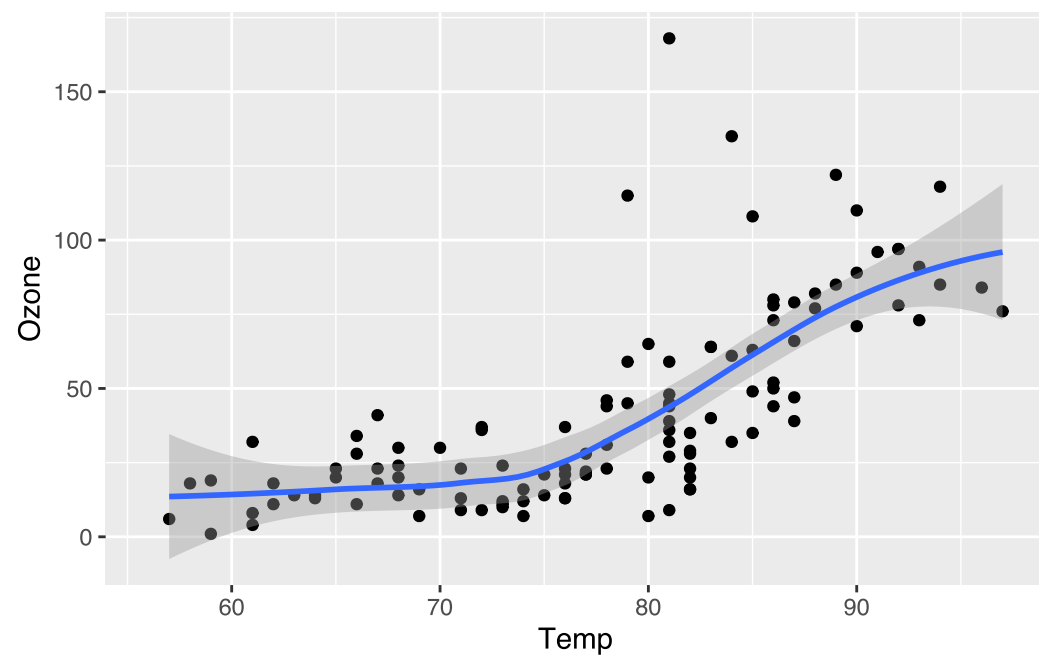


Figure 2: Temperature and ozone level

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$$\sum_{(k=1)}^n k = \frac{n(n+1)}{2} = \frac{n^2+n}{2} \tag{1}$$

V. ACKNOWLEDGEMENT

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