



**TOWARDS A MORE  
STATISTICALLY  
LITERATE FUTURE**

## The New Statistics Curriculum at Secondary Schools in Flanders

Tom Loeys (Ghent University)

# My background



- Professor at the Department of Data Analysis, Faculty of Psychology and Educational Sciences, Ghent University (teaching advanced courses data analysis at the faculty, supervision of master theses in educational sciences)
- Former President of the Royal Statistical Society of Belgium (organization of statistical literacy courses for journalists, jury member European Statistics Competition)
- Proud father of Thomas and Elise (17 and 15 years old)

# Reform Program Secondary School (also Statistical Literacy)



- 1st year: 2019-2020 (the year my son started)
- 5th year: 2023-2024
- For Statistics: GAISE recommendations (GAISE=Guidelines for Assessment and Instruction in Statistics Education):
  1. Teach statistical thinking.
  2. Focus on conceptual understanding.
  3. Integrate real data with a context and purpose.
  4. Foster active learning.
  5. Use technology to explore concepts and analyze data.
  6. Use assessments to improve and evaluate student learning.

# Research Master Theses



- Supervision of Master Theses (jointly with my colleague Jan De Neve) exploring the experiences with the implementation of the new statistics/ICT program and the needs of teachers
- 7 Master Students in Educational Sciences:  
2022-2023: Tine Chiau, **Thibaut Heymans** and Lutgart Souffriau  
2023-2024: Febe De Vos, Lara Sierens, **Elien Sirjacobs** and Phoebe Van Immerzeele
- Quantitative and Qualitative Research in different samples (1st grade, 2nd grade, and humanities in 3rd grade)

# Survey 1: 2<sup>nd</sup> grade



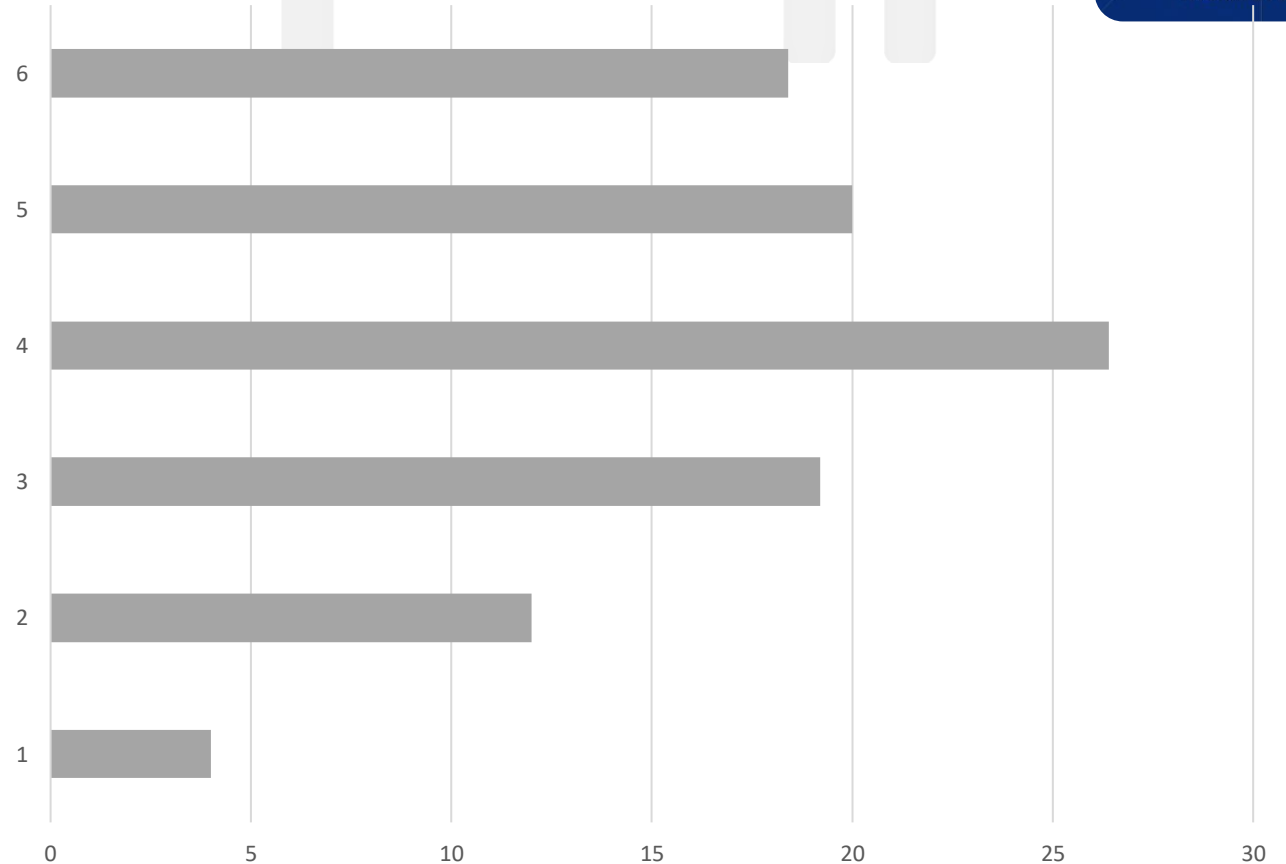
- Mixed method design
- Interviews performed with 5 teachers to fine tune the questionnaire
- Online Survey: 248 participants teaching mathematics in 2<sup>nd</sup> grade secondary school in Flanders
- Years of experience: mean 15 years, median 12 years
- 58% bachelor degree, 25% master degree

# Perceived Importance Data and Uncertainty

## Building Blocks Mathematics Curriculum:

- Numbers and Quantities
- Space and Shape
- Relation and Change
- Data and Uncertainty
- Reasoning and Abstract Thinking
- Mathematical Modeling and Problem Solving

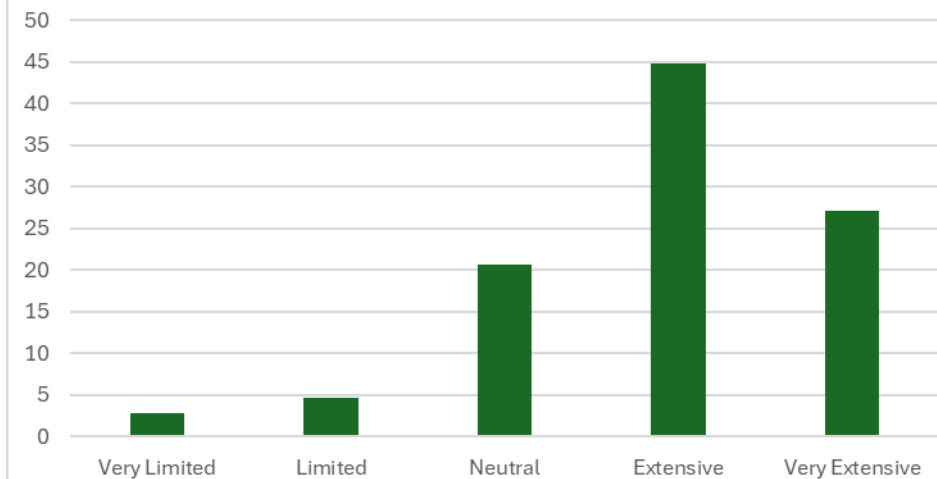
Rank "Data and Uncertainty"  
amongst 6 Building Block



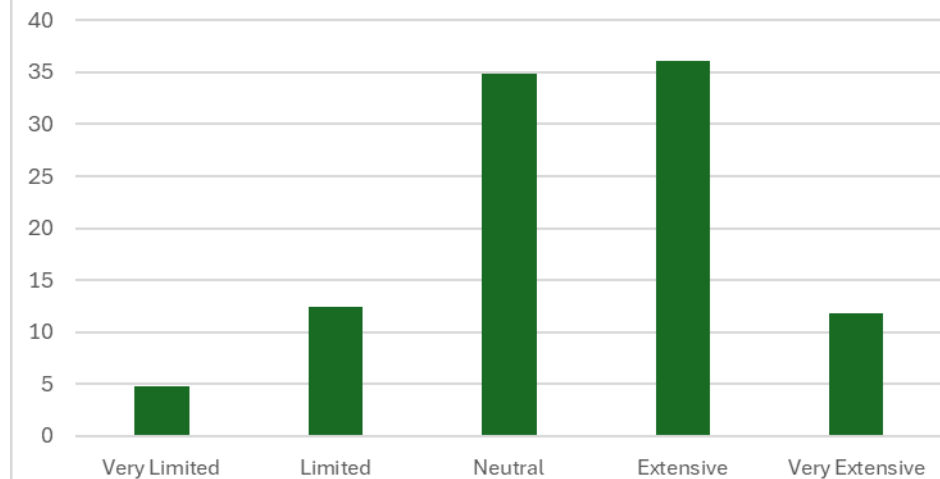
# Prepared to Teach the New Curriculum



Technical Skills Data und Uncertainty



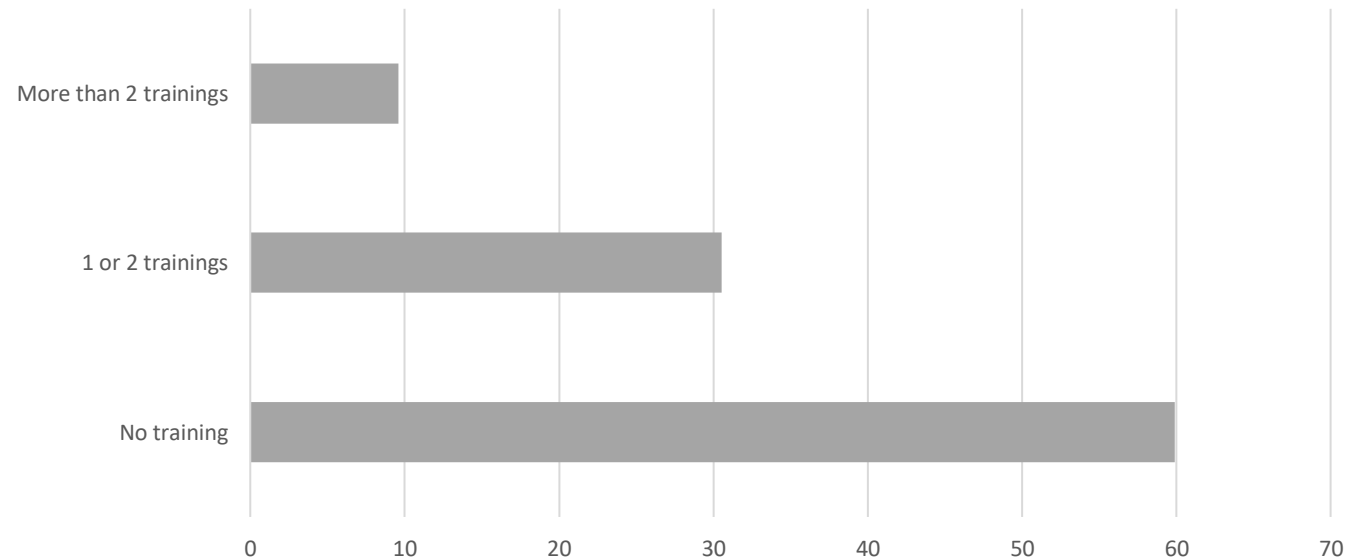
Pedagogical Skills Data and Uncertainty



# Additional Trainings Data and Uncertainty



Additional Trainings in the Past 10 Years  
on Data and Uncertainty

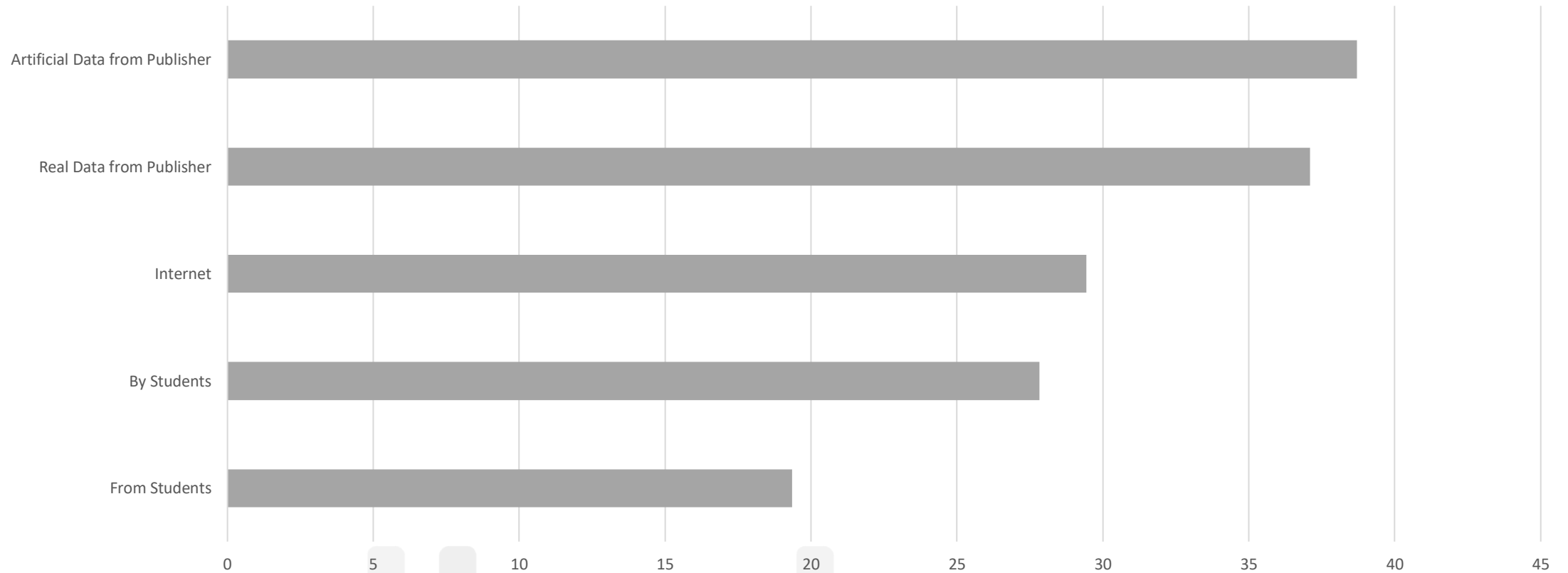




# Data Sources



Origin Data Used in Class (2nd Grade)



# Survey: humanities (3rd Grade)

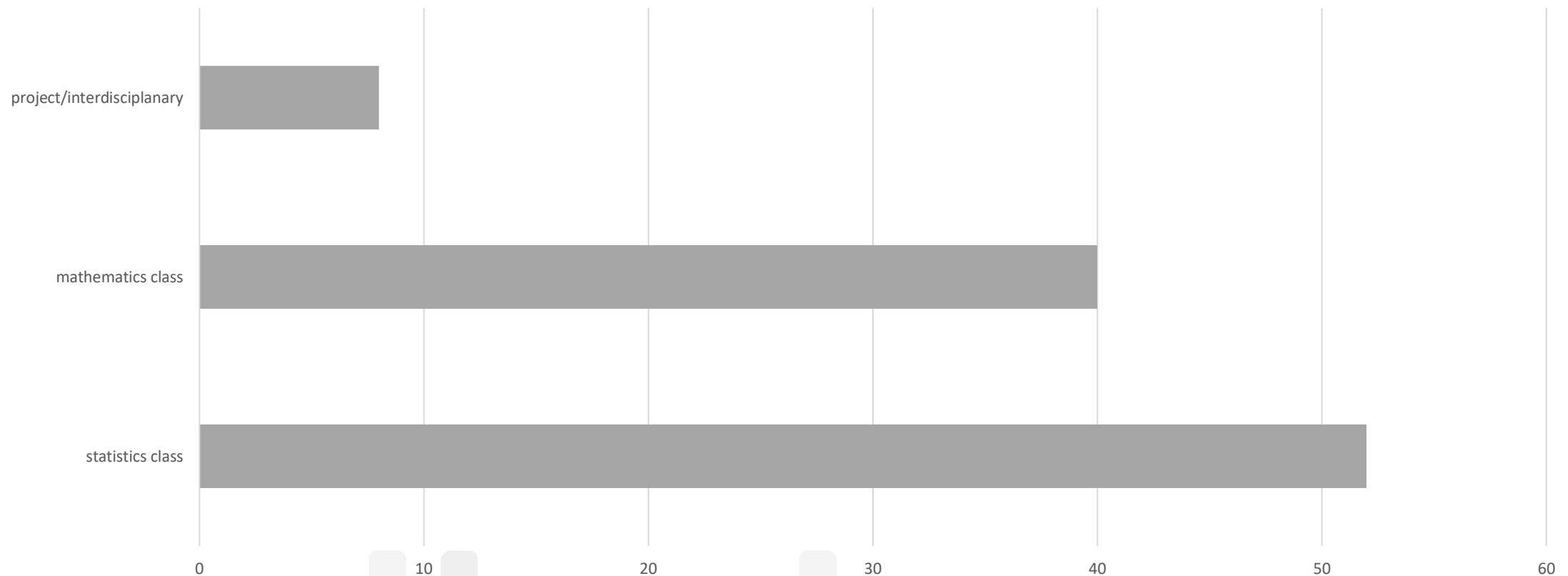


- Students studying social sciences often lack statistical skills
- New curriculum: extra attention to statistics in humanities 3rd grade (not organized by all schools)
- Some freedom in the way it is organized
- Only started this year (or even next year)
- 79 schools participated in online survey (followed by some interviews)

# How is Statistics Class Organized in 3rd Grade Humanities



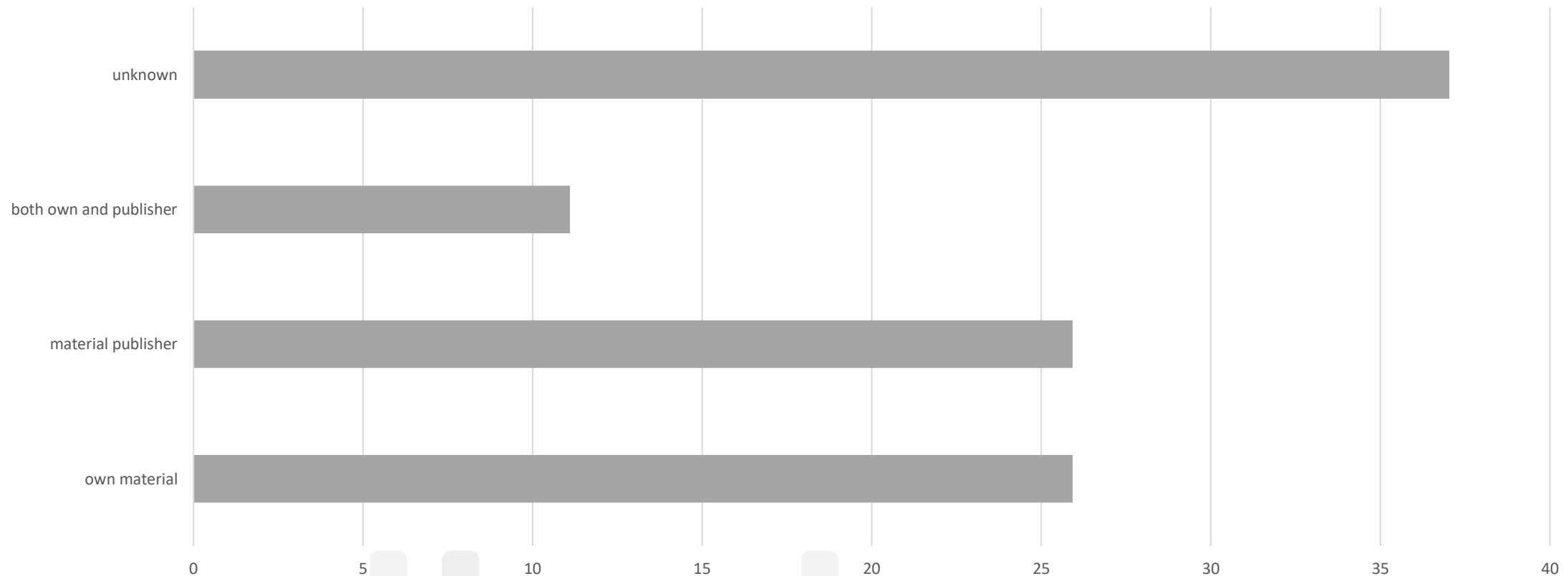
Organisation of Statistics Classes in 3rd Grade Humanities

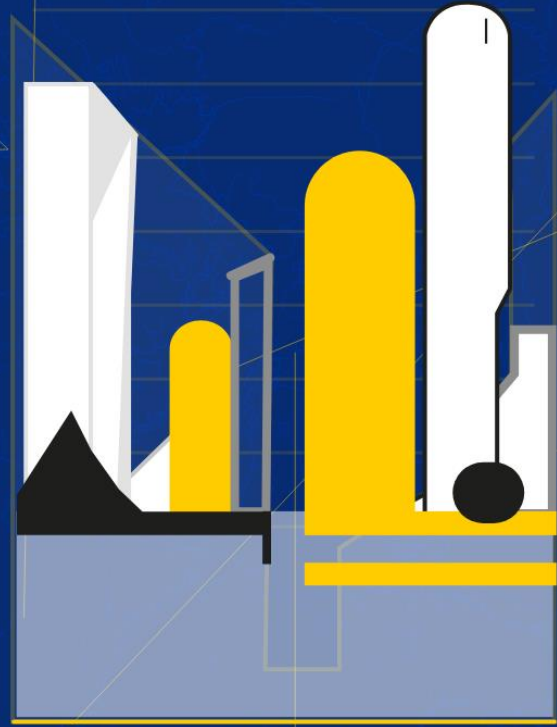


# What Course Material is Used in 3rd Grade Humanities



Course Material 3rd Grade Humanities





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## Group Discussion Questions:

1. Need for More Data with Context:  
How to Reach Publishers?
2. Tailored Training for Teachers:  
How to Get a Feeling for Data?
3. Interdisciplinary Learning:  
How to Integrate in Other Disciplines