

# ***How much of the environment do pre-teens know?***

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**CORDIO**  
East Africa

# Introduction

- MARG grant
- Where are we at in terms of what young people know about the marine environment?
- Assessment for learning techniques (groups)
  - Odd-One-Out
  - Diamond ranking
  - Thinking skills
- Summative assessment (individuals)
  - Survey test

# Research questions

- What do primary school pupils know about the marine ecosystem (threats, fishing, species)?
- Is there a relationship between knowledge and distance from Marine Protected Areas?

# Methodology

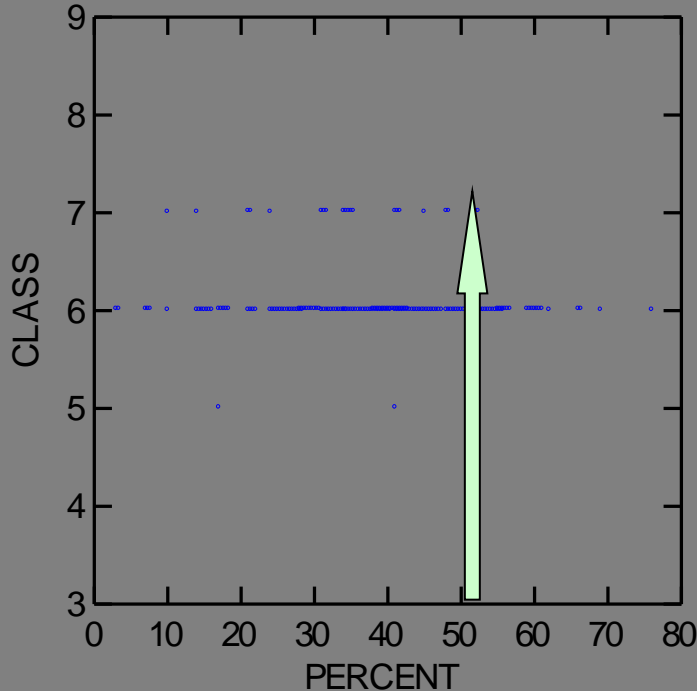
- Comparative case study
- Random sampling of 6 schools per site
- GIS mapping
- Survey test
- Focus group discussions
- Observations
- Two sample t- test for comparisons
- Multi dimensional scaling of performance and distance to MPA

# Survey test, sample questions

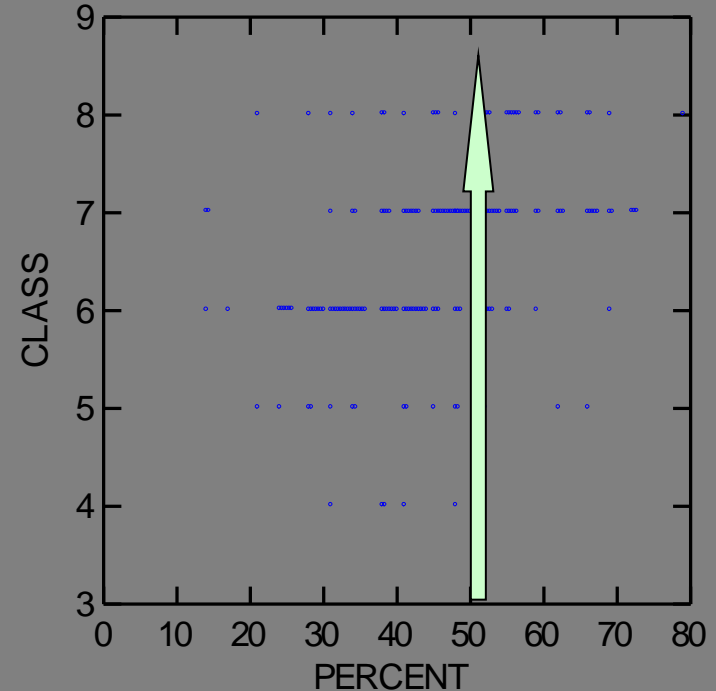
- Are there any threats to the environment in your local area?
- Which threats are those?
- List types of marine species, fishing methods
- Are any fishing methods bad? How?
- What are corals, mangroves?
- How are they important?
- List important uses of the environment

# Participants' class distribution

Mombasa



South Coast



mean = 36% (n=174)

mean = 44% (n=177)

# Results – overall means

➤ Overall mean =  $39.9 \pm 14.305$

➤ Threats =  $39.9, \pm 21.567$

➤ Fishing =  $29.9, \pm 18.120$

➤ Species =  $50.6, \pm 18.759$

# Performance, Locality

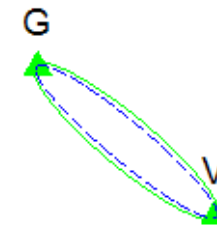
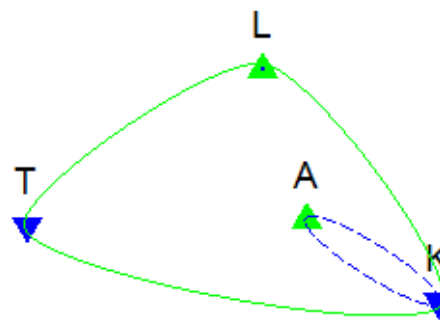
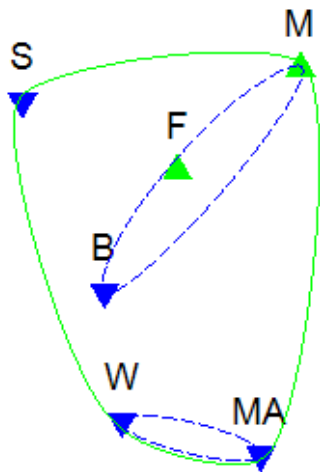
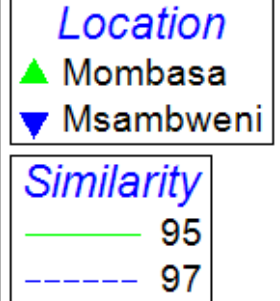
Theme	Mombasa (%)	Msambweni (%)	Significance
Threats	34	40	0.008
Fishing	26	34	0.000
Species	46	55	0.000

# Performance, locality

## Performace of schools

Transform: Square root  
Resemblance: S17 Bray Curtis similarity

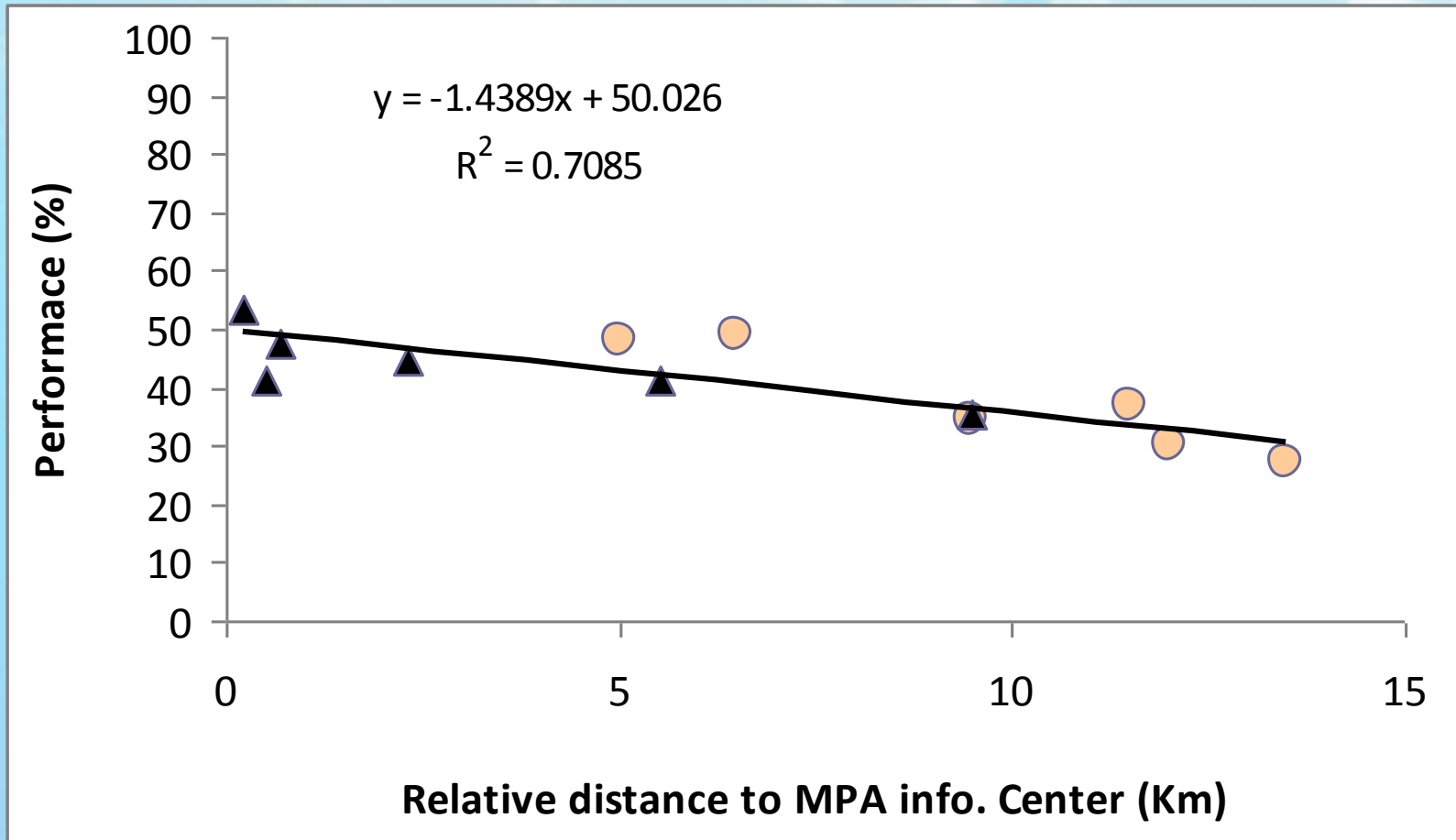
2D Stress: 0.01



# Performance, Gender

Theme	Female (%)	Male (%)	Significance
Threats	37	37	0.910
Fishing	27	33	0.002
Species	48	53	0.015

# Performance, Distance to MPA



# Conclusions and recommendations

- General awareness levels are low (Av. Mark 40%) – need to increase awareness efforts
- Better performance where learners interact with ocean (e.g. boys awareness of fishing and species) – experiential learning is effective
- Schools closest (walking distance) to MPAs have the best performance - need for more accessible information (mobile centers, radio programs, guided field excursions)

# Acknowledgements

- CORDIO – home!
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- Surveyed schools
- K. Osuka and D. Macharia – data analysis