

# Learning from microworlds: evidence from a fisheries simulation game

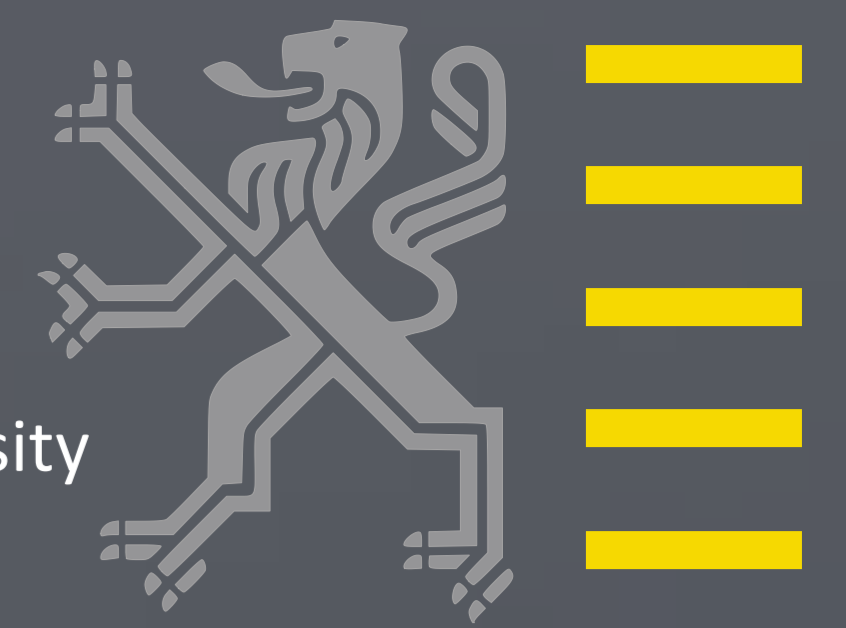


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## Research question

Do stakeholders in the Belgian fisheries system learn from using a gaming simulation model?

## Material & Methods

### STEP 1

#### The gaming simulation model

The story behind the game is that the player is the only policy maker in Belgian fisheries and he needs to maximise his votes for the upcoming elections. The way to do this is to demonstrate his policy strategy for the upcoming 20 years to the different stakeholder groups involved in the Belgian fisheries system.

### STEP 2

#### Population, sample and recruitment

Stakeholder group	Organisation	Population*	Participants	Part. rate
Policy makers	The Department of Agriculture and Fisheries of the Flemish Government	21	17	81%
	The Cabinet of the Flemish Government in charge of sea fisheries	3	2	67%
	DG Maritime Affairs and Fisheries (EU)	69	6	9%
	Cabinet of Commissioner Joe Borg (EU)	13	0	0%
Scientists	Institute of Agricultural and Fisheries Research	35	20	57%
Fishing industry	Ship owners and skippers	?	12	?

\*This is a proxy of the population and consists only of the people who are involved directly or indirectly in Belgian fisheries.

### STEP 3

#### The Questionnaires

##### Measuring:

- Subjective knowledge about the impact of policy instruments
- Attitude towards policy instruments
- Behavioural intention towards policy instruments
- Attitude towards the used microworld
- Perceived internal validity of the microworld
- Self-reported learning about the impact of policy instruments
- Self-reported learning about fisheries management difficulty

### STEP 4

#### Five sessions of 'Before after with control group'-experiments

SESSION (≈ STAKEHOLDER GROUP)	
Experimental group*	Control group*
Pre-test	Pre-test
Play to learn for gaming competition	
Post-test	Post-test
Gaming competition	Gaming competition

\*Participants were randomly assigned to experimental and control group

### STEP 5

#### Statistical analyses

Different forms of analysis of variance



The experimental group of the scientists  
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## Hypothesis & Results

Hypothesis*	Accepted or rejected
H0 <sub>1</sub> : Pre-test(exp) = Pre-test(contr) The two randomly selected treatment groups are initially equal.	Accepted
H0 <sub>2</sub> : Pre-test(stake1) = Pre-test(stake2) = Pre-test(stake3) All stakeholder groups are initially equal related to the dependent variables.	Rejected
H0 <sub>3</sub> : Post-test(exp) = Post-test(contr) The two treatment groups will (still) be equal after having played with the microworld on the dependent variables that were measured in both experimental treatments.	Accepted
H0 <sub>4</sub> : Post-test(stake1) = Post-test(stake2) = Post-test(stake3) All stakeholder groups are (still) the same related to the dependent variables after having played with the microworld.	Rejected
H0 <sub>5</sub> : Pre-test = Post-test Both treatments caused no changes in subjective knowledge, attitude, and behavioural intention towards policy instruments.	Rejected
H0 <sub>6</sub> : [Post-test(exp) - Pre-test(exp)] = [Post-test(contr) - Pre-test(contr)] The microworld caused no changes in subjective knowledge, attitude, and behavioural intention towards policy instruments.	Accepted
H0 <sub>7</sub> : [Post-test(stake1) - Pre-test(stake1)] = [Post-test(stake2) - Pre-test(stake2)] = [Post-test(stake3) - Pre-test(stake3)] Stakeholder groups report the same changes in subjective knowledge, attitude, and behavioural intention towards policy instruments independent from the treatment condition.	Rejected

\* "Exp" = Experimental condition / "Contr" = Control group / "Stake" = Stakeholder group

## Conclusion

This experiment indicates that using the microworld did not result in changes in stakeholders' subjective knowledge, attitude and behavioural intention towards policy instruments in Belgian fisheries management. This outcome is somewhat contradictory to the fact that all stakeholders groups reported that they had learned from the microworld about the effect policy instruments have on the fisheries system and that they had confidence in the microworld and perceived its behaviour as valid.

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