



# How to choose the best format within the portfolio of economic experiments? Going from lab to field

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Sophie THOYER, Raphaële PREGET, Anne ROZAN

Workshop Angers 6-7 June 2017

# Outline

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# 1. Typology

Harrison & List (2004) Field experiments, *Journal of Economic Literature*, 42(4)1009-1055

- ▶ A conventional **lab experiment** is one that employs a standard subject pool of students, an abstract framing, and an imposed set of rules.
- ▶ **Field experiments**  
Criteria that define field experiments: the nature of the subject pool, of the information that the subjects bring to the task, of the commodity, of the task or trading rules applied, of the stakes, of the environment that the subject operates in.
  - ▶ an **artefactual field experiment** is the same as a conventional lab experiment but with a nonstandard subject pool
  - ▶ a **framed field experiment** is the same as an artefactual field experiment but with field context in either the commodity, task, or information set that the subjects can use
  - ▶ a **natural field experiment** is the same as a framed field experiment but where the environment is one where the subjects naturally undertake these tasks and where the subjects do not know that they are in an experiment.

# 1. Typology

There exists other terminologies

- ▶ **Extra-laboratory experiment**

Experiments “that have the same spirit as laboratory experiments, but are conducted in a non-standard manner.” They typically entail a different subject pool and/or a different venue. [Charness, Gneezy, Kuhn \(2013\)](#)

- ▶ **Lab-in-the-field experiment**

Experiment “conducted in a naturalistic environment targeting the theoretically relevant population but using a standardized, validated lab paradigm.” [Gneezy, Imas \(2016\)](#)

- ▶ **Lab-like field experiments**

“comprise artefactual field experiments and those framed field experiments that are identical to artefactual field experiments except for the task being framed in a field context.” [Viceisza \(2016\)](#)

- ▶ ...?

# 1. Typology

	Decontextualized lab expe	Contextualized lab expe	Artefactual expe	Framed artefactual expe	Framed field expe	Natural field expe
	Conventional decontextualized lab expe with students	Contextualized lab expe with students	Decontextualized experiments with stakeholders	Contextualized experiments with stakeholders	Contextualized experiments with stakeholders and real tasks	Stakeholders not aware they are participating in an experiment
Harrison & List (2004)	Lab expe		Artefactual expe	Framed field experiments		Natural field expe
Charness, Gneezy, Kuhn (2013)			Extra-laboratory experiments			
Gneezy, Imas (2016)			Lab-in-the-field experiments			
Viceisza (2016)			Lab-like field experiments			
...?						

## 2. From students to stakeholders

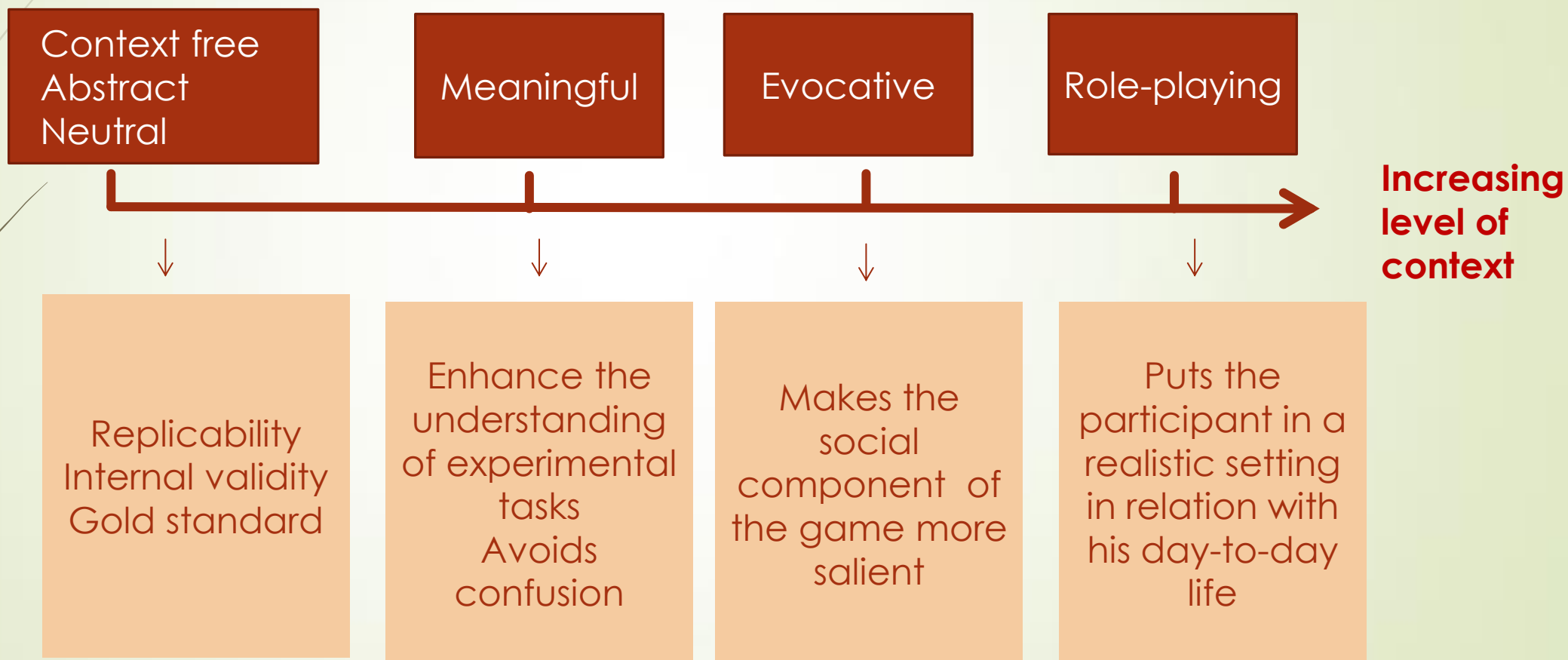
- ▶ Do students behave like stakeholders, even with identical protocols?
  - ▶ The results on whether the subject pool matters are mixed. [Alatas et al \(2009\)](#)
  - ▶ This depends on the type of experiment/game
  - ▶ “There is now plenty of evidence demonstrating that students are slightly less “pro-social” than other groups in a variety of designs and settings. For example students have been shown to behave less generously, less cooperatively and less trustfully.” [Exadaktylos et al \(2013\)](#)  
Exadaktylos et al (2013) results suggest that “self-selected students are an appropriate subject pool for the study of social behavior.”
  - ▶ [Stoop \(2014\)](#) paper shows that there are settings where laboratory behavior of students is predictive for field behavior of a general population.
- ▶ What about intercultural impacts?
  - ▶ There are evidence of cultural impacts in various games. For example: [Willinger et al \(2003\)](#) found with an investment game that the level of trust is higher in Germany than in France
  - ▶ Does a French farmer behave like a German farmer?
  - ▶ Does a wine-grower behave like a cereal farmer?

## 2. From students to stakeholders

- ▶ “The most appropriate pool of participants should depend both on the task and the **goal** of the study.” *Bortolotti, Casari, Pancotto (2015)*
- ▶ “Results obtained from different subject pools can **complement** each other in illuminating different aspects of the same problem.” *Alatas, Cameron, Chaudhuri (2009)*
- ▶ Warning: “The effect of **self-selection** can be even more pronounced outside the student community.” *Alatas, Cameron, Chaudhuri (2009)*
- ▶ Issue of **anonymity**
  - ▶ between experimenter and subjects
  - ▶ among participants
- ▶ Impact of **scrutiny**?
- ▶ **Difficulties:**
  - ▶ Problem to have **access** to the stakeholders and specialty farmers (see round table)
  - ▶ More **expensive** (higher stakes needed)
  - ▶ More heterogeneity
  - ▶ ...?

### 3. From decontextualized to contextualized experiments

#### 3.1 Designing instructions with more context?





## 3. From decontextualized to contextualized experiments

### 3.2 Role of construal

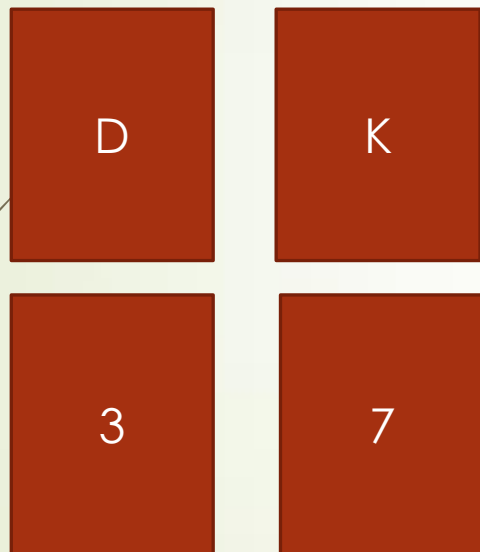
*(Levitt and List 2007 ; Paluck and Shafir 2017; Voors et al, 2012)*

- “Construal is the act of interpreting and attaching subjective meaning.. to various stimulus. “
- *Even neutral instructions are subject to construal which cannot be controlled for*
- *Shift parameters explaining divergence between contextualized and decontextualized experiments:*
  - *moral/ethical considerations*
  - *Context in which the choice is embedded*
  - *The extend to which one's actions is scrutinized by others*
  - *The stakes of the game*

## 3. From decontextualized to contextualized experiments

### 3.3 Improving understanding and reasoning

Ex: Wason's selection task (Wason and Shapiro 1971)



« Every card with a D on one side has a 3 on the other side »



« When I go to Manchester, I always travel by car »

➔ Risk of respondent applying a routine made from past experience

### 3. From decontextualized to contextualized experiments

#### 3.4 Triggering social behaviour

- Choice of words and instruction settings affecting the social component of the game
- Useful to provide external validity for games appealing to emotions, ethics, moral feelings etc.

Ex: Offers - Players

Bribes - Civil servants

➔ But risks of different interpretations by participants with different cultural background

## 3. From decontextualized to contextualized experiments

### 3.5 Role-playing

- Describes a **life-like** situation and asks participant to behave “as if”
- Creates a **more realistic** situation resonating with the participant’s own experience:
  - captures routine reasoning and embedded behaviour
  - can be used to “train” farmers with new policy device (Laury et al, 2003)
- But **imperfect mimicking**. It may trigger unwanted reactions from participants who recognize only partially their own situation.
- Are the expected benefits of more realism greater than the disadvantages of an imperfect reality?

➔ Next step: framed field experiments

## 3. From decontextualized to contextualized experiments

### 3.6 Does contextualization increase bias ?

Experimenter's intentions are more easily « guessed »:

- Risk of **yea-saying** bias? reinforced by the lack of anonymity
- Risk of **strategic bias**?

Farmers respond strategically to alter the results of the experiment and lead to the policy conclusions that suit them best

## 4. Moving from the lab to the field: practical issues and burning questions

- ▶ Example: Test of a collective conditionality in agri-environmental scheme (AES)– the example of protected catchments for drinking water provision.



Catchment area in Saone-Veyle. Photo C.Wittner

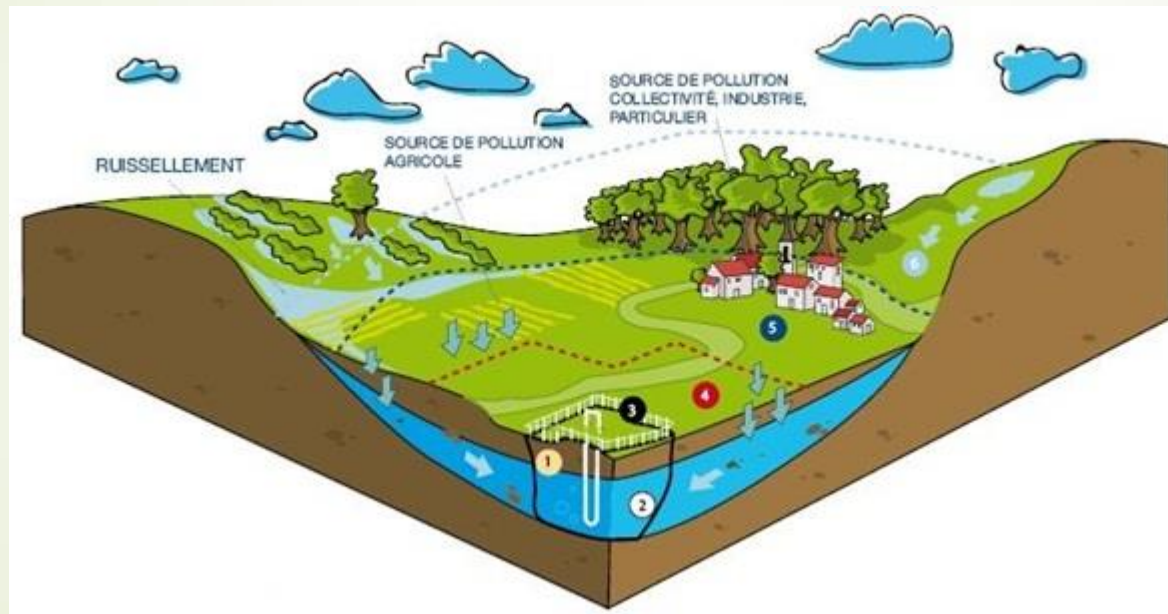


Association du pays de la Baie



Photo: Rémi Barbier

Test of a collective conditionality in AES – the example of protected catchments for drinking water provision.



Source: Vernoux et Buchet, 2010

Enrolled area needs to be over a minimum **THRESHOLD** to avoid welfare losses (Dupraz et al. 2007)

# Experimental test of the collective conditionality in AES

(Le Coent P., Pr eget R., Thoyer S., 2014)

Context	Transposition into the Lab
Water quality in the catchment area	Threshold Public Good
Farmers	Students
Agri-environmental contract	Subsidy proportional to individual contribution: unconditional subsidy scheme
Agri-environmental contract with collective conditionality	Subsidy proportional to the contribution triggered if the threshold of the public good is collectively reached: conditional subsidy scheme

source: Le Coent P., PhD thesis, chapter 3, p.126



# From lab experiment to artefactual field experiment: the case of South Alsace



Lab	Artefactual field
Students	Nonstandard subjects: farmers
Group size : 4	Group size : 4
Step-level public good	Water quality in catchment
Private/collective accounts	Conventional farming/ enrolled in AES
Tokens	Hectares (ha)
Subsidy (conditional and unconditional)	Sort of agri-environmental scheme: as in the lab conditional and unconditional subsidy

*Difficulties to contextualize... some practical questions...*

# First difficulty: we impose similar conditions (farm size) WHILE they differ in real situations

- ▶ In the Lab: subjects receive 20 tokens.
- ▶ In the field: we ask farmers to consider that they have 20 ha in the catchment.
  - ▶ **BUT** if these 20 ha represent the entire farm size, then it does not fit average real conditions. Indeed, in Alsace average farm size is between 60 and 80 ha.
  - ▶ **THUS** we reframe the instructions : « consider that, as a farmer, you have, **among others**, 20 ha in the water catchment area. Since you are 4 farmers, the size of the catchment area is 80 ha ».
  - ▶ Assuming a size of 80 ha for the catchment area is realistic within the Alsatian context.
  - ▶ **BUT** we may lose some control because we cannot rule out a specific construal of the game by participants: i.e. reduce the risk associated to yield loss (due to changes in fertilization practices) by production intensification on the hectares farmed outside the catchment area.
  - ▶ *In order to check participants' real farming strategies, we asked them to complete a survey at the end of the experiment*

## Second difficulty: we impose similar conditions (farming system) WHILE they differ in real situations

- ▶ In the Lab: two « accounts » : a private one and a collective one
- ▶ In the field: the « investment in the collective account » is translated as « a farmer's commitment to deploy good practices on enrolled ha in AES».
  - ▶ In a first version, one example of "Good Practice" was «conversion from cereals to permanent grass » BUT this supposed that farming systems include cattle, which is not always the case ...
  - ▶ **Need to carefully select types of good practices, in order to keep the experiment under control**
  - ▶ We asked agricultural experts to proof-read the instructions
  - ▶ *As before, in order to check farmers practices, we asked them to complete a survey at the end of the experiment*

## Third difficulty: the positive externality of the public good

- ▶ In the Lab: « if, the collective account contains at least 40 tokens, each token invested in this account yields 0.3 points for each member of the group »
- ▶ In the field: « if at least 40 ha of the catchment area are enrolled in AES, then the water quality is improved significantly and the cost of drinking water treatment decreases. This creates a benefit for everybody »
- ▶ ... And later in the instructions: « if at least 40 ha of the catchment area are engaged, each ha enrolled yields a benefit of 0.3 point for each farmer ».
- ▶ To be realistic, we have made explicit that these additional points correspond to the improvement of water quality (which benefits everybody in the catchment). In particular, we wanted that participants be able to differentiate what in their gains comes from the subsidy scheme and what comes from the positive externality of improved water quality
- ▶ Does knowing about a positive externality benefitting a broader group change farmers' behavior? This is an **open question**

# Implementation

- ▶ We implemented a pilot in November 2016 with 4 farmers in Amertzwiller (South of Alsace)
- ▶ Parametrization is exactly the same in the Lab and in our artefactual Field experiment, including the exchange rate (1 point = 6 € cents). The only difference in the payment is that farmers received additionally a 15 € lump sum.
- ▶ The farmers' feedbacks were good: they were very keen to consider improving water quality in the catchment area as a collective issue.

## 5. Conclusions

- ▶ There was a sharp debate on the relative interest of lab and field experiments: see for example Levitt and List (2007) and Camerer's response (2011)
- ▶ Gneezy and Imas 2017: "collecting covariates using the lab-in-the-field methodology as part of an RCT helps in 2 ways. First it can help identify the theoretical mechanisms driving the success or failure of the program. Second, these data can assist policy-makers in targeting future interventions to participants who are most likely to adopt/benefit from it (p14)
- ▶ Discussion?

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