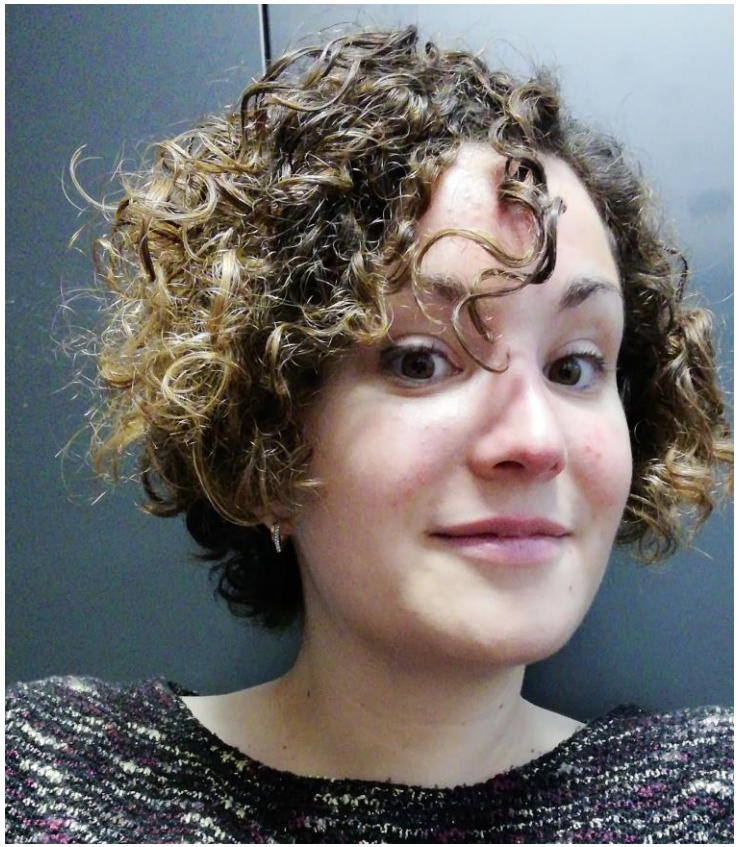
COGNITIVE SCIENCE ARENA
2019

UNIVERSITÀ DEGLI STUDI DI MILANO BICOCCA

A presentation by Stefania La Rocca

Have I seen you before? A VR study

La Rocca S., Daini R.



Guess who? Where?...When?

“Butcher-on-the-bus Phenomenon”
Mandler (1980)

Who are you? Have I seen you before? Oh you…again!

Improve memory for faces (without transforming people in Queen Elizabeth)

I don’t even know you

Famous

Increase familiarity to the stimuli

1

Is the number of exposure enough?

2

What happens to the spatial context?

Context reinsteintement effect

Facilitation due to the presentation of the same coding context in the recall phase

Context (spatial, temporal and emotional) as cue for item

(Smith, 1988; 1994; Smith & Vela, 2001)

Aim of the study

Investigate the influence of context in face learning

Procedure

1. Validation of Scenes Stimuli
2. Incidental Learning Phase (trough VR procedure)
3. Face recognition

Participants

21 participants (11 males) between 20- 30 years

We tested:

- Difficulties in face recognition (P-20)
- Colour deficit (Ishiara test)




48 NATURAL ENVIRONMENT: 360° IMAGES FROM GOOGLE STREET VIEW ©

SCENES STIMULI 1

PRE TEST STIMULI (COROLLARY EXPERIMENT)

20 participants

Judge similarity (1 to 7)

24 couples: choose **16 stimuli** (4,46 ± 0,80)

1

Scenes

Congruent

Switched

New

Similar

1

FACES

16 CAUCASIAN FACES (8 MALES)

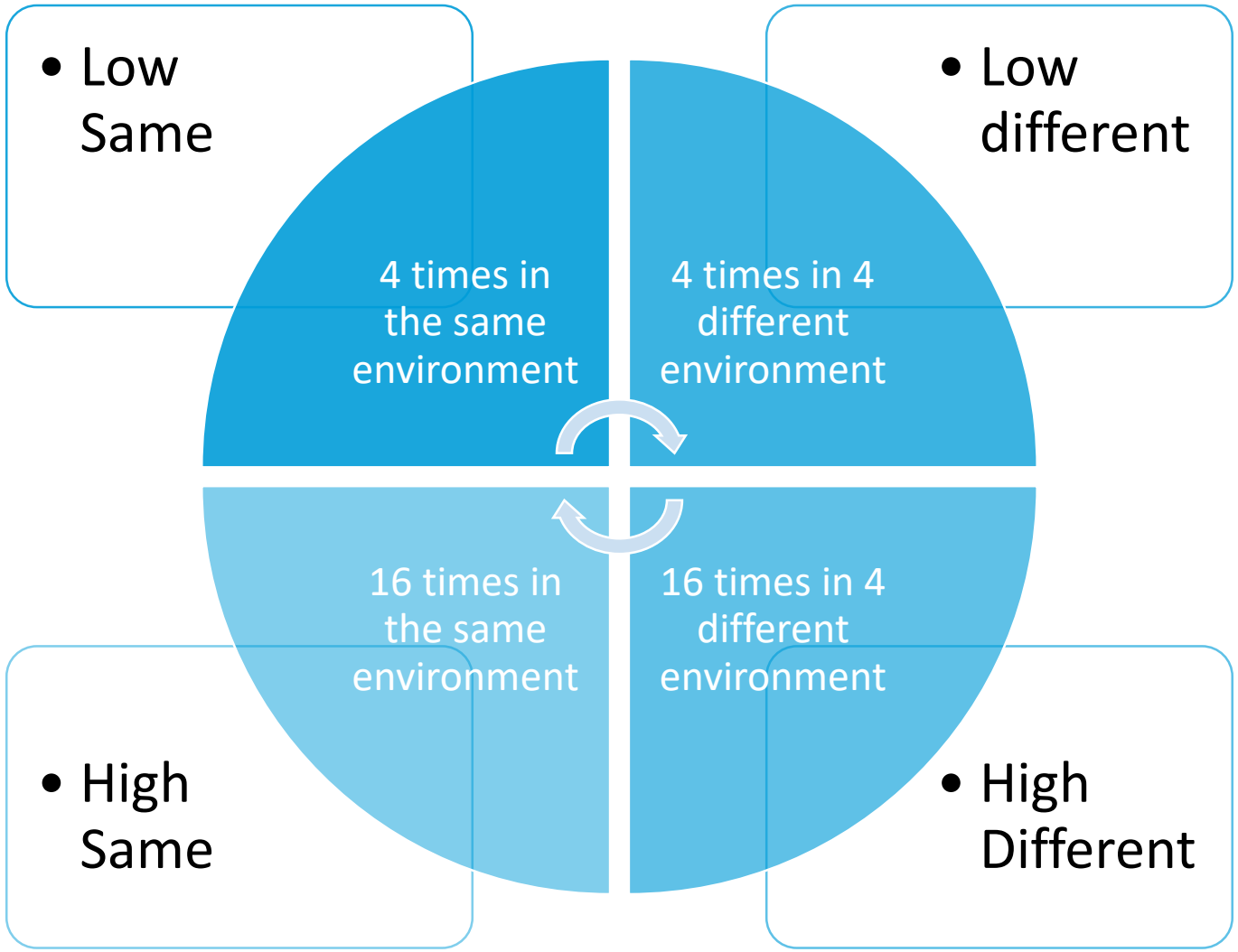
from CHICAGO FACE DATABASE

INCIDENTAL LEARNING PHASE

Visual Search task:

- Describe the environment
  - Warm
  - cold
- Search for a face
  - Female
  - Male
- Virtual reality approach
  - More ecological
  - Avoid perceptual priming

2



We manipulated

- Number of exposures
- Variety of contexts

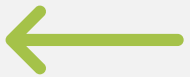
4 FACES IN EACH CONDITION

Face recognition

3

After 1 hour we tested memory for faces

Familiar and unfamiliar



Primed by 4 context:

Congruent

Similar

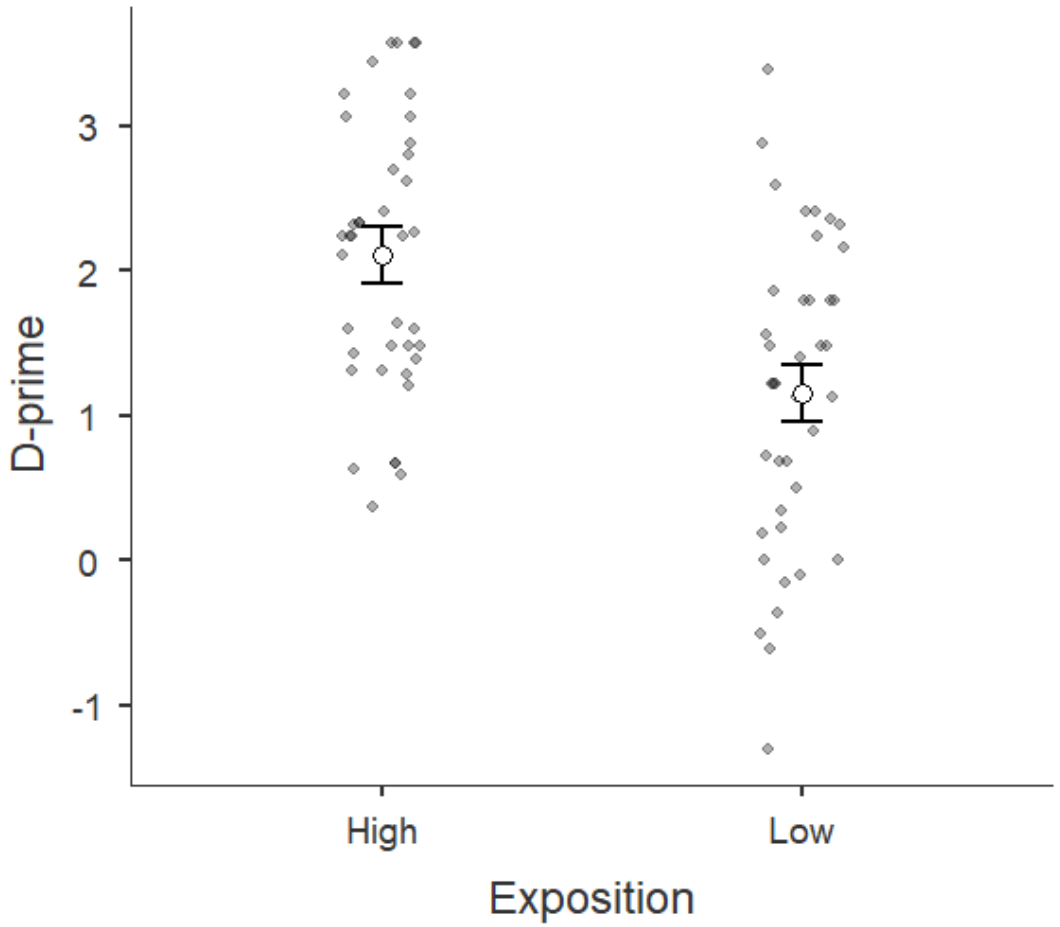
Switched

New

RESULTS

- We conducted a repeated measure ANOVA on d' and context and exposition as factors.

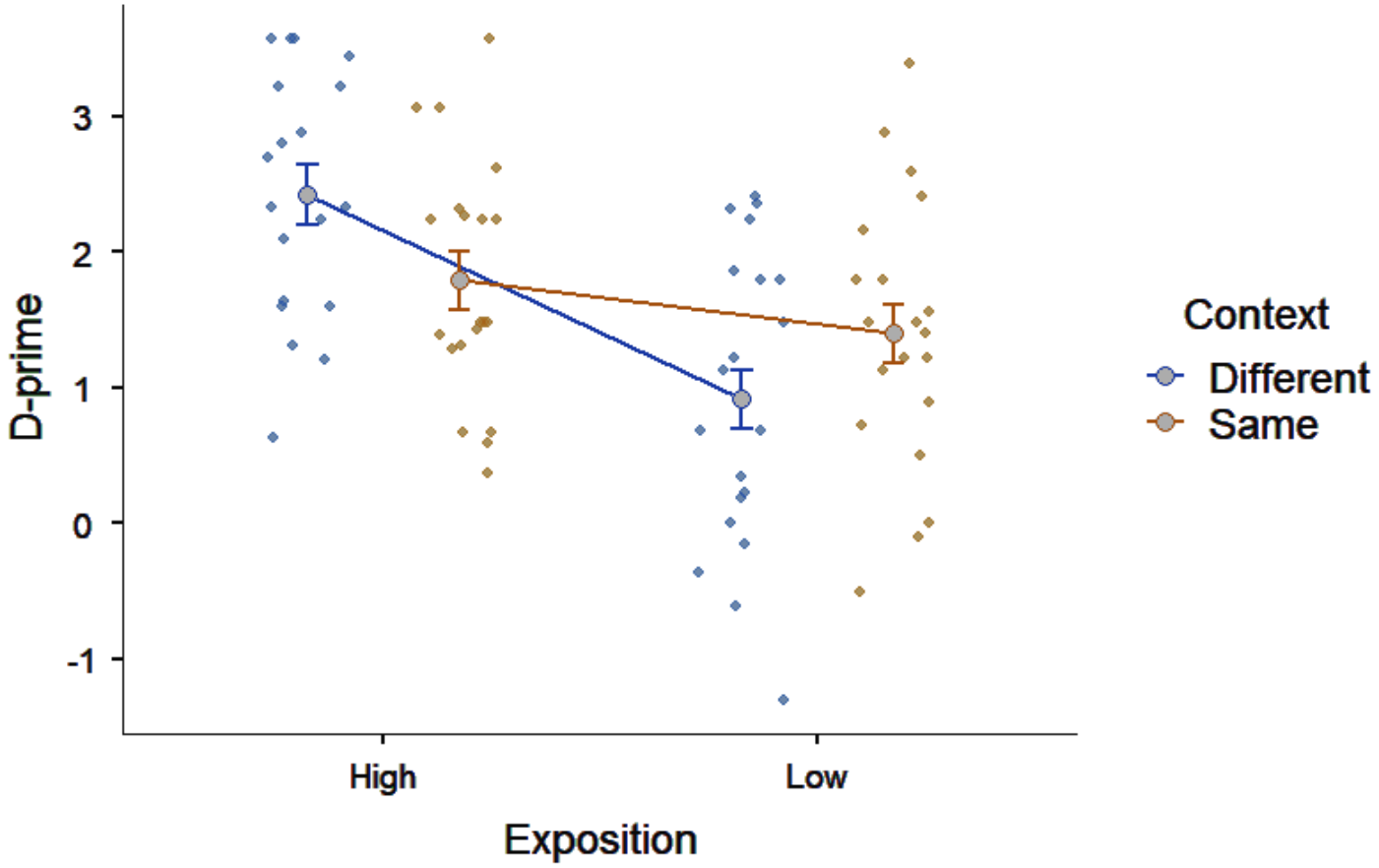
- We found a **main effect** of exposition
- $F(1,19)=17.215$, $p<0.001$, $\eta^2_i=0.186$



Estimated Marginal Means - Exposition				
			95% Confidence Interval	
Exposition	Mean	SE	Lower	Upper
High	2.11	0.195	1.709	2.50
Low	1.16	0.195	0.761	1.55

RESULTS

- We found an **interaction effect** exposition x context
- $F(1,19)=17.215$, $p<0.001$, $\eta^2_i = 0.186$



Estimated Marginal Means - Exposition * Context

Context	Exposition	Mean	SE	95% Confidence Interval Lower	95% Confidence Interval Upper
Different	High	2.421	0.218	1.983	2.86
	Low	0.914	0.218	0.475	1.35
Same	High	1.789	0.218	1.351	2.23
	Low	1.400	0.218	0.961	1.84

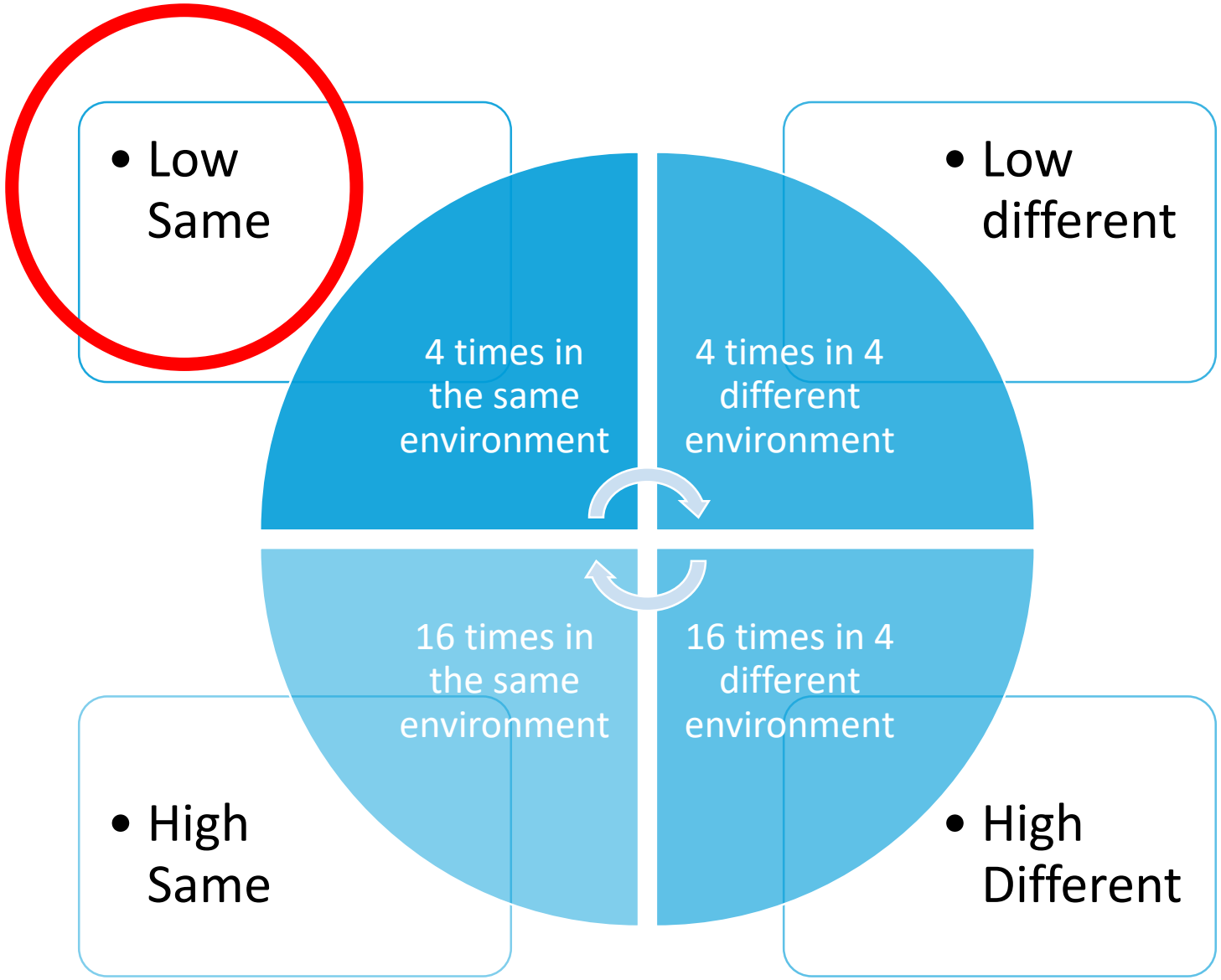
Episodic

Semantic

DISCUSSION

According to Outshining Hypothesis memory for item increase with the increase of variety of scenes

No effect of condition: no perceptual priming effect



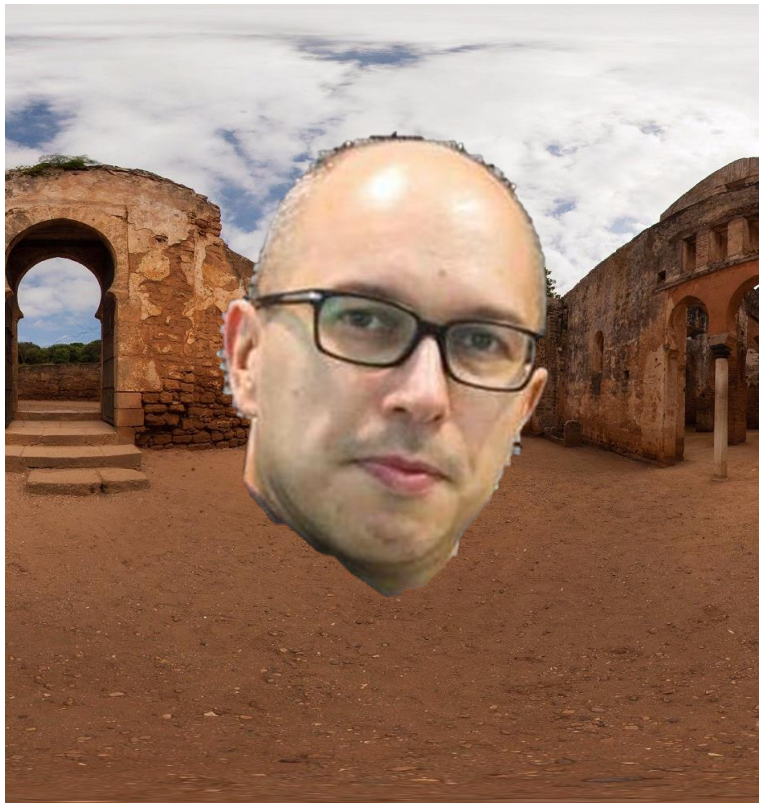
Memory for faces…and for context

NEXT STUDIES

FUTURE DIRECTION

- Elderly people
  - More difficulties in episodic retrieval (where and when)
  - Differences during life span
  - Memory training
- Virtual reality
  - How to build a Virtual Scenario for Memory and Learning Experiment

Roberta Daini, Associate Professor



Alessio Facchin, PhD

Marco Petilli, PhD

Thanks to N-VISION LAB

Special thanks to MARCO BIELLA and MARTINA PARISI