



# CONSTRUAL LEVEL IN SPACE : AN EXPERIMENTAL STUDY OF CONSTRUAL LEVEL AND SPATIAL ORIENTATION



33rd International Congress of Psychology, 21-26 July 2024, Prague, Czech Republic  
Esra Damla Çakır, Ankara Yıldırım Beyazıt University  
Eva Christine Neidhardt, Universität Koblenz · Landau

UNIVERSITÄT  
KOBLENZ · LANDAU

## INTRODUCTION

### Spatial Orientation

- a set of complex abilities that allow one to position oneself in space based on a specific reference point (Coluccia & Louse, 2004)
- Several cognitive components can be related to spatial orientation (e.g. cognitive mapping)

### Construal Level Theory

- psychological distance determines the level of abstraction of mental representations (Trope and Liberman, 2007).
- High level: Abstract and schematic, focusing on the big picture
- Low level: Concrete, contextual, and detail-oriented (Liberman, Sagristano, & Trope, 2002).

## OBJECTIVE

The primary objective of the current experimental study is to examine the potential impact of construal level (abstract vs. concrete) on spatial orientation.

- Hypothesis 1:* activation of the abstract construal level (focus on the big picture - primary features of things/events) would lead to higher spatial orientation scores than activation of the concrete construal level (focus on details - secondary features of things/events).
- Hypothesis 2:* activation of the abstract construal level (focus on the big picture - primary features of things/events) would lead to less total fixation duration than activation of the concrete construal level (focus on details - secondary features of things/events).

## METHOD

### Participants

- 16 (5 women and 11 men, Mean of age = 24)
- The targeted sample size is 102 ( $1 - \beta = 0.80$ ) and the study is still ongoing.

### Materials

- How (abstract) and Why (concrete) manipulation task (Freitas et al., 2004) is used to manipulate the construal level. (instructed to think about how or why they would do something, e.g. improve mental health)
- Manipulation Check (Rim et al., 2014) grouping task. Abstract (less group), and Concrete (more group)
- Virtual Reality Glasses (Brand) with head-mounted/mobile eye tracker (they were able to look around (118 pieces) as they wished)
- Ehrenbreitstein Castle (located in Koblenz/Germany) simulation (Münch, 2016)



Note. The well in the main court of the Ehrenbreitstein Castle from the simulation created by Andreas Münch (2016)

### Design and Procedure

- Experimental between-subject design
- First manipulation with How and Why task based on the group
- Then visit to the simulation of Ehrenbreitstein Castle
- Six locations -> (to point with a button evoking a laser sword to the starting point, i.e. an object that served as the target object to the well.

## PRELIMINARY RESULTS

### Hypothesis 1

	n	Mean	SD	t	df	p
Abstract Condition	8	32.9	24.7	.758	14	.379
Concrete Condition	8	25.3	13.3			

Note. No significant difference in spatial orientation scores was found between concrete and abstract group.

The analyses revealed no significant difference between participants in the two conditions for spatial orientation or total fixation duration. However, it is essential to note that the study is still ongoing, and these findings are considered preliminary.

### Hypothesis 2

	n	Mean	SD	t	df	p
Abstract Condition	8	780	133	.859	13	.823
Concrete Condition	8	840	133			

Note. No significant difference in total fixation duration scores was found between concrete and abstract group.

#### Acknowledgment

We would like to thank to the Erasmus+ program for their support, and Lea Immenkamp for her contributions in data collection.

#### Reference

- Coluccia, E., & Louse, G. (2004). Gender differences in spatial orientation: A review. *Journal of Environmental Psychology*, 24(3), 329-340. doi:10.1016/j.jenvp.2004.08.006
- Freitas, A. L., Gollwitzer, P., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *Journal of Experimental Social Psychology*, 40(6), 739-752. doi:10.1016/j.jesp.2004.04.003
- Liberman, N., Sagristano, M., & Trope, Y. (2002). The effect of temporal distance on level of construal. *Journal of Experimental Social Psychology*, 38, 523-535
- Münch, A. (2016). Comparing spatial, peripheral and emotional perception in a HMD virtual reality with their real world counterparts (Unpublished master's thesis). Universität Koblenz-Landau
- Trope Y, Liberman N, Wakslak C (2007) Construal levels and psychological distance: Effects in representation, prediction, evaluation and behavior. *J. Consumer Psych.* 17:83-95.



edamlacakir@gmail.com



Esra Damla Çakır  
Eva Christine Neidhardt

SCAN





# CONSTRUAL LEVEL IN SPACE : AN EXPERIMENTAL STUDY OF CONSTRUAL LEVEL AND SPATIAL ORIENTATION



33rd International Congress of Psychology, 21-26 July 2024, Prague, Czech Republic  
Esra Damla Çakır, Ankara Yıldırım Beyazıt University  
Eva Christine Neidhardt, Universität Koblenz · Landau

UNIVERSITÄT  
KOBLENZ · LANDAU

## INTRODUCTION

### Spatial Orientation

- a set of complex abilities that allow one to position oneself in space based on a specific reference point (Coluccia & Louse, 2004)
- Several cognitive components can be related to spatial orientation (e.g. cognitive mapping)

### Construal Level Theory

- psychological distance determines the level of abstraction of mental representations (Trope and Liberman, 2007).
- High level: Abstract and schematic, focusing on the big picture
- Low level: Concrete, contextual, and detail-oriented (Liberman, Sagristano, & Trope, 2002).

## OBJECTIVE

The primary objective of the current experimental study is to examine the potential impact of construal level (abstract vs. concrete) on spatial orientation.

- Hypothesis 1:* activation of the abstract construal level (focus on the big picture - primary features of things/events) would lead to higher spatial orientation scores than activation of the concrete construal level (focus on details - secondary features of things/events).
- Hypothesis 2:* activation of the abstract construal level (focus on the big picture - primary features of things/events) would lead to less total fixation duration than activation of the concrete construal level (focus on details - secondary features of things/events).

## METHOD

### Participants

- 16 (5 women and 11 men, Mean of age = 24)
- The targeted sample size is 102 ( $1 - \beta = 0.80$ ) and the study is still ongoing.

### Materials

- How (abstract) and Why (concrete) manipulation task (Freitas et al., 2004) is used to manipulate the construal level. (instructed to think about how or why they would do something, e.g. improve mental health)
- Manipulation Check (Rim et al., 2014) grouping task. Abstract (less group), and Concrete (more group)
- Virtual Reality Glasses (Brand) with head-mounted/mobile eye tracker (they were able to look around (118 pieces) as they wished)
- Ehrenbreitstein Castle (located in Koblenz/Germany) simulation (Münch, 2016)



Note. The well in the main court of the Ehrenbreitstein Castle from the simulation created by Andreas Münch (2016)

### Design and Procedure

- Experimental between-subject design
- First manipulation with How and Why task based on the group
- Then visit to the simulation of Ehrenbreitstein Castle
- Six locations -> (to point with a button evoking a laser sword to the starting point, i.e. an object that served as the target object to the well.

## PRELIMINARY RESULTS

### Hypothesis 1

	n	Mean	SD	t	df	p
Abstract Condition	8	32.9	24.7	.758	14	.379
Concrete Condition	8	25.3	13.3			

Note. No significant difference in spatial orientation scores was found between concrete and abstract group.

The analyses revealed no significant difference between participants in the two conditions for spatial orientation or total fixation duration. However, it is essential to note that the study is still ongoing, and these findings are considered preliminary.

### Hypothesis 2

	n	Mean	SD	t	df	p
Abstract Condition	8	780	133	.859	13	.823
Concrete Condition	8	840	133			

Note. No significant difference in total fixation duration scores was found between concrete and abstract group.

**Acknowledgment**  
We would like to thank to the Erasmus+ program for their support, and Lea Immenkamp for her contributions in data collection.

**Reference**  
Coluccia, E., & Louse, G. (2004). Gender differences in spatial orientation: A review. *Journal of Environmental Psychology*, 24(3), 329-340. doi:10.1016/j.jenvp.2004.08.006  
Freitas, A. L., Gollwitzer, P., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *Journal of Experimental Social Psychology*, 40(6), 739-752. doi:10.1016/j.jesp.2004.04.003  
Liberman, N., Sagristano, M., & Trope, Y. (2002). The effect of temporal distance on level of construal. *Journal of Experimental Social Psychology*, 38, 523-535  
Münch, A. (2016). Comparing spatial, peripheral and emotional perception in a HMD virtual reality with their real world counterparts (Unpublished master's thesis). Universität Koblenz-Landau  
Trope Y, Liberman N, Wakslak C (2007) Construal levels and psychological distance: Effects in representation, prediction, evaluation and behavior. *J. Consumer Psych.* 17:83-95.



edamlacakir@gmail.com



Esra Damla Çakır  
Eva Christine Neidhardt

