

# First fixation duration as a bottom-up measure during symbolic and non-symbolic numerical comparisons (La duracion de la primera fijacion como medida bottom-up al comparar cantidades simbolicas y no simbolicas)

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## STUDIES IN PSYCHOLOGY

Volumen: 41

Número: 3

Páginas: 563-579

DOI: 10.1080/02109395.2020.1794717

Fecha de publicación: SEP 1 2020

Acceso anticipado: SEP 2020

Tipo de documento: Article

### Abstract

The ability to represent quantities, either in a symbolic or non-symbolic format, predicts calculation skills. Recording the saccades during gazing at these stimuli allows us to infer the cognitive processing taking place at that moment. The purpose of this research study was to analyse the duration of the first fixation during symbolic and non-symbolic numerical stimuli. We evaluated 32 university students through symbolic and non-symbolic number comparison tasks while recording their eye movements. In addition, they answered a calculation task. Participants spent more time looking first at the stimulus of greater magnitude during the execution of the comparison task (regardless of the presentation format). This measure was not a predictor of calculation skills. The duration of the first fixation was interpreted as a bottom-up measure during numerical stimuli perception, and therefore during the initial stage of cognitive processing.

### Palabras clave

**Palabras clave de autor:** [numerical cognition](#); [Arabic symbol](#); [saccadic movements](#); [first fixation duration](#); [eye tracker](#)

**KeyWords Plus:** [NUMBER](#); [COGNITION](#)

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### **Financiación**

<b>Entidad financiadora</b>	<b>Número de concesión</b>
Centro de Investigaion en Educacion y Desarrollo (CIEDE-UCSC)	CIEDE 05/2017
Fondecip	EQM 150119
CONICYT, Chilean Ministry of Education	
ANID/PIA/Basal Funds for Centers of Excellence	FB0003

[Ver texto de financiación](#)

### **Editorial**

ROUTLEDGE JOURNALS, TAYLOR & FRANCIS LTD, 2-4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND

### **Información de la revista**

- **Impact Factor:** [Journal Citation Reports](#)

### **Categorías / Clasificación**

**Áreas de investigación:**Psychology

**Categorías de Web of Science:**Psychology, Multidisciplinary

### **Información del documento**

**Idioma:**English

**Número de acceso:** WOS:000568497200001

**ISSN:** 0210-9395

**eISSN:** 1579-3699