

**X**

# JORNADAS PEDAGÓGICAS

**Aprender em Comunidade** | **7a10 de set.** | **Auditório da UTAD**

*Em busca da equidade: como as neurociências podem ajudar nesse caminho.*

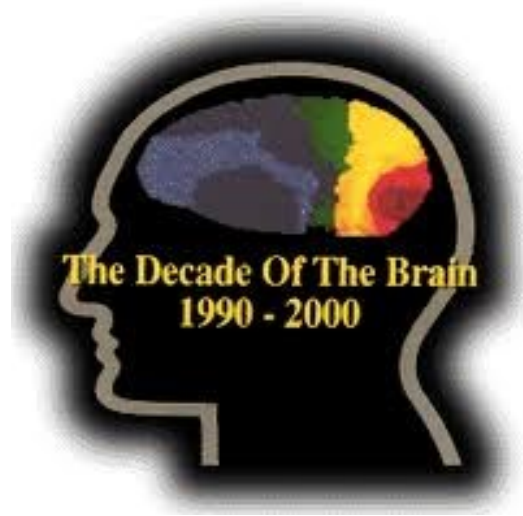


**CATÓLICA**  
CIS - CENTRO DE INVESTIGAÇÃO  
INTERDISCIPLINAR EM SAÚDE

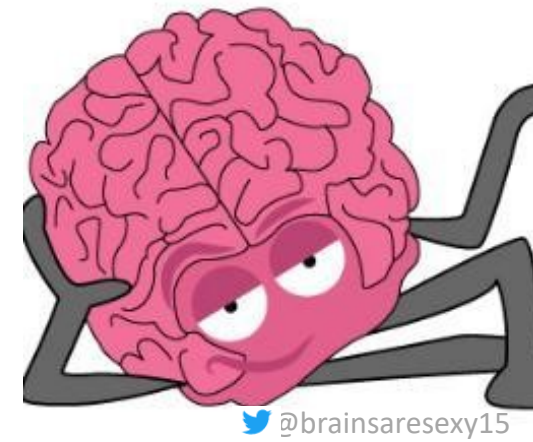
LISBOA · PORTO · VISEU

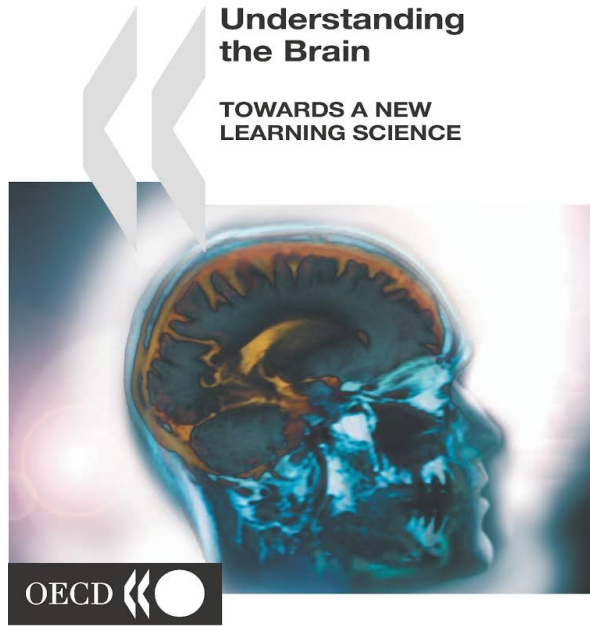
**Joana Rato**  
[joana.rato@ucp.pt](mailto:joana.rato@ucp.pt)

# NEUROCIÊNCIAS

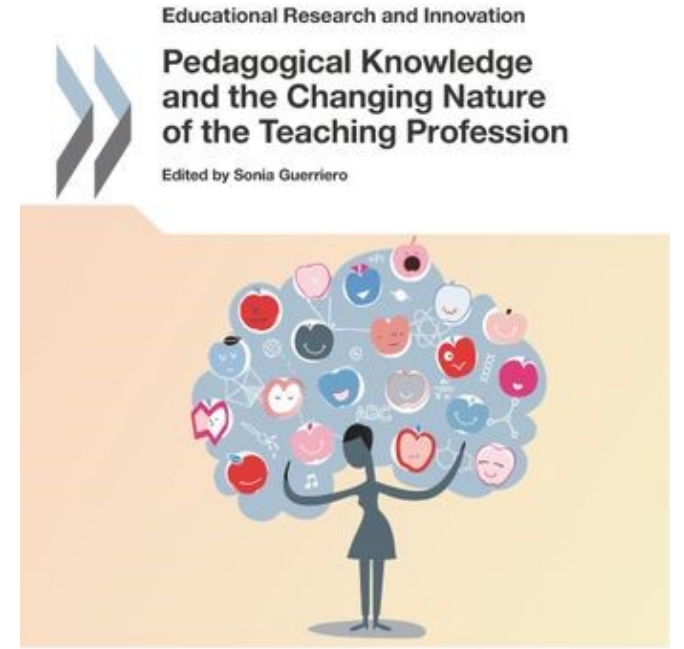


# EDUCAÇÃO





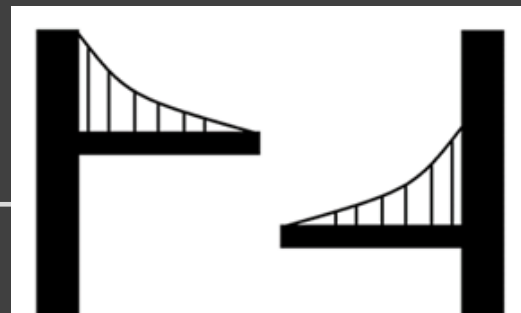
2002



OECD

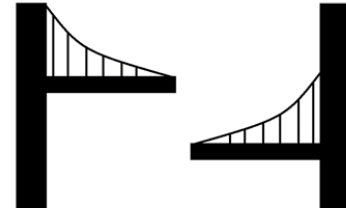
2017

NEUROCIÊNCIAS



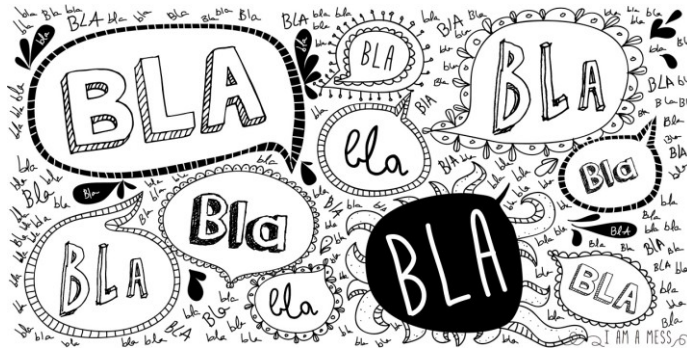
EDUCAÇÃO

# NEUROCIÊNCIAS



# EDUCAÇÃO

## Onde começam os entraves?



*Jargão*



*Comunicação*

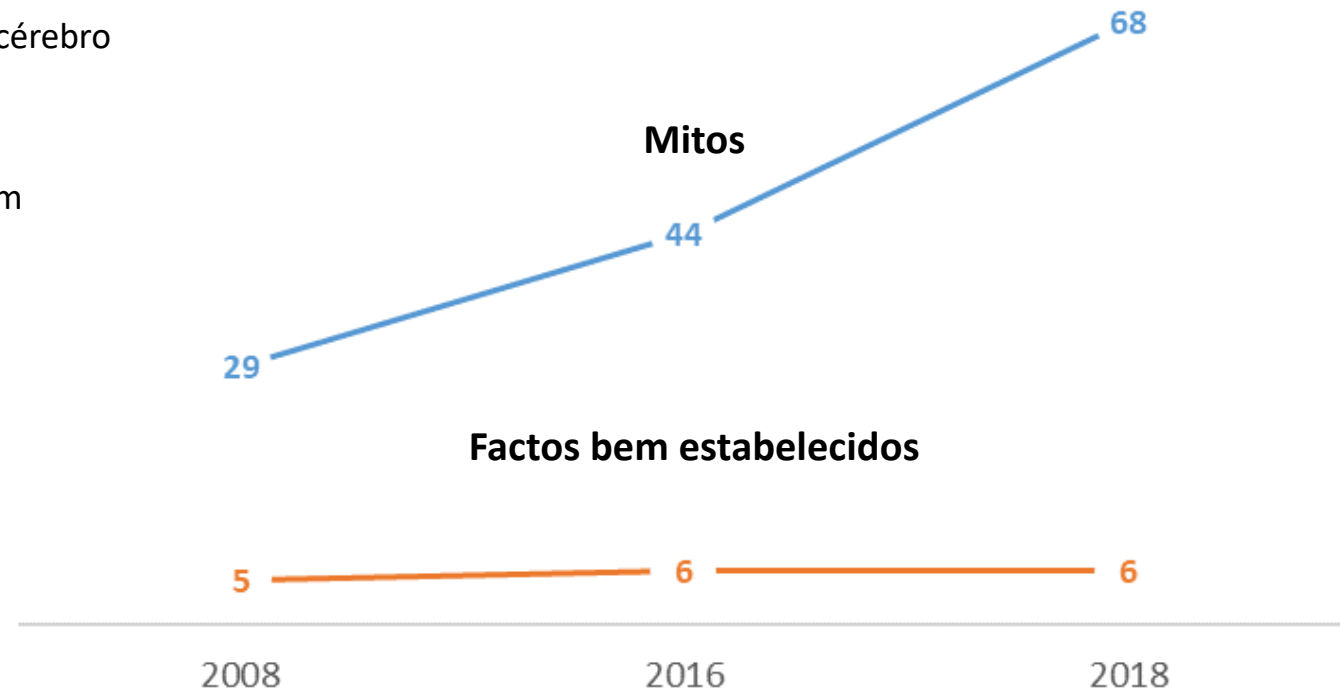
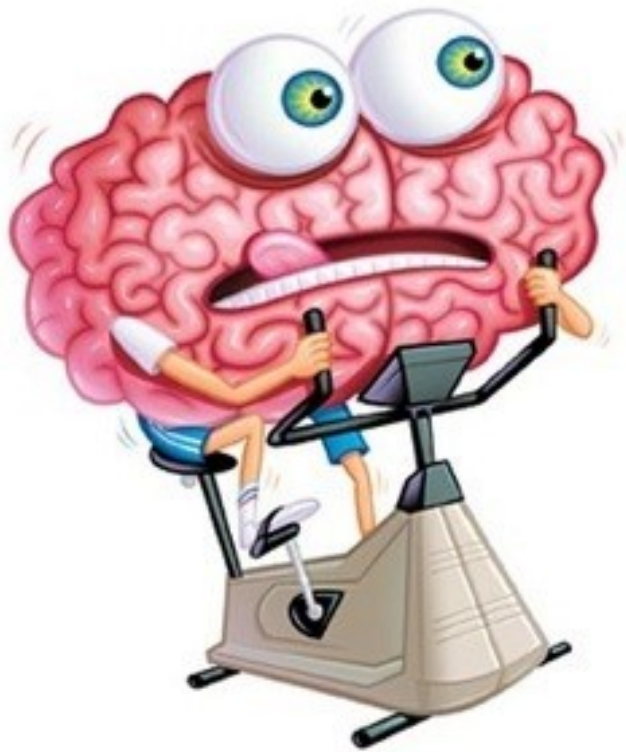
*Formação*

*Referenciação*

*Investigação*



- Inteligência
- Estrutura e arquitetura do cérebro
- Ensino e aprendizagem
- Desenvolvimento humano
- Ambientes de aprendizagem
- Relação mente-corpo
- Memória e atenção
- Linguagem



(Tokuhama-Espinosa, 2018)



*Aprendemos melhor se recebermos a informação de acordo com o nosso estilo de aprendizagem preferencial? (modelo VAK)*



Modelos que evocam que aprendemos por modalidades sensoriais preferenciais

- *Learning Style Inventory* - Dunn, Dunn & Price (1984)
- *VARK model* - Fleming & Mills (1992)

### ***O que sabemos:***

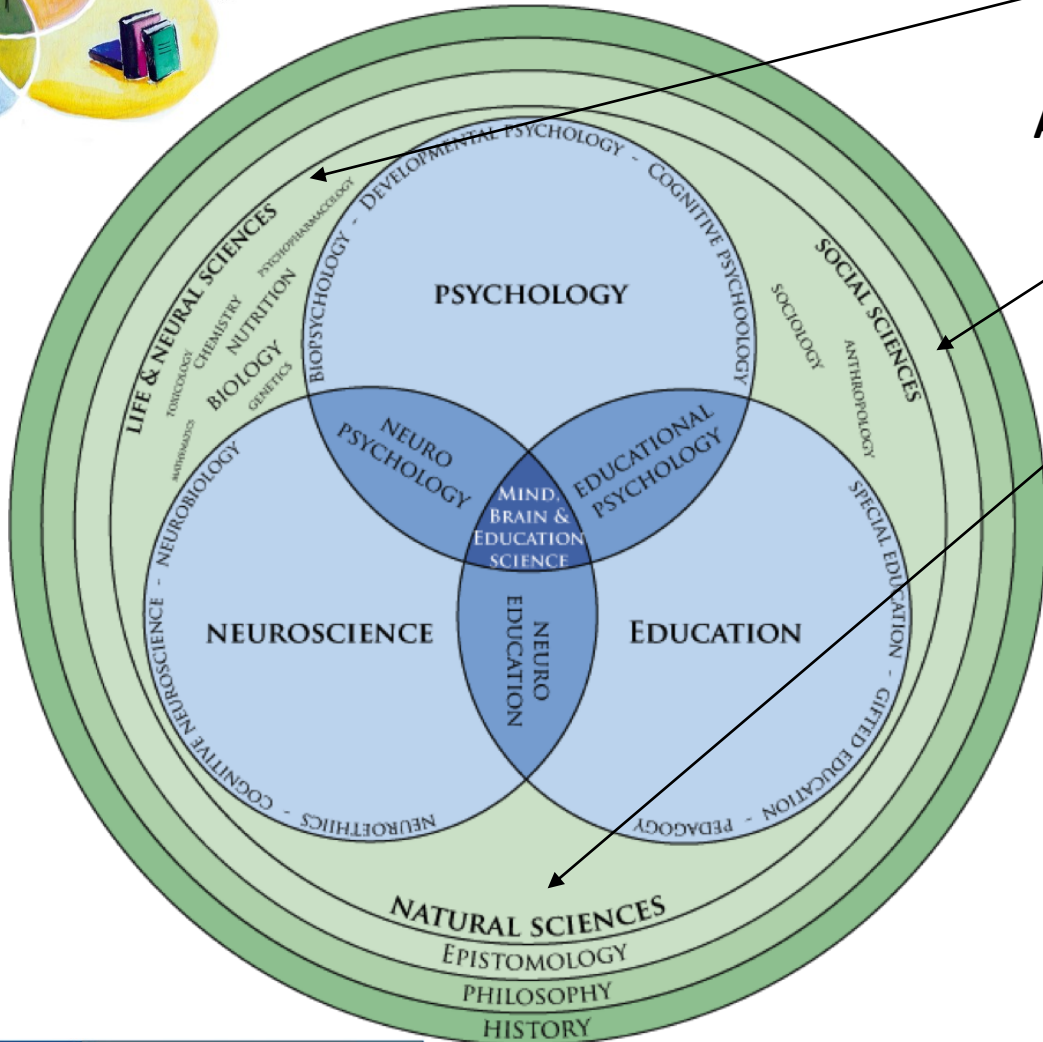
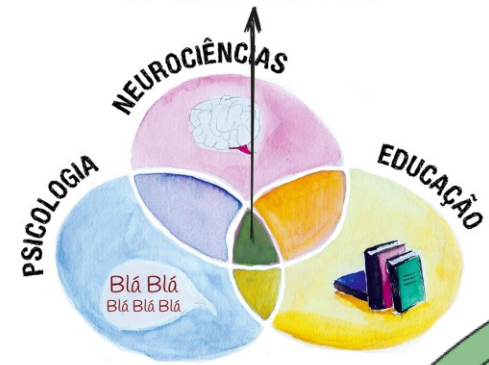
- **Inexistência de evidência científica** (e.g., Rogowsky, Calhoun, & Tallal, 2020)
- Não há correlação entre os estilos de aprendizagem e as capacidades cognitivas (Massa & Mayer, 2006)

## Prevalência do mito em seis contextos internacionais diferentes

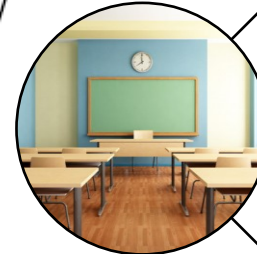
U.K. (n=137)	Holanda (n=105)	Turquia (n=278)	Grécia (n=174)	China (n=238)	Portugal (n=583)
93%	96%	97%	96%	97%	52% <sup>*</sup> 41% "não sei"

Dekker, et al.(2012) *Frontiers in Psychology*  
Howard-Jones (2014) *Nature Reviews Neuroscience*

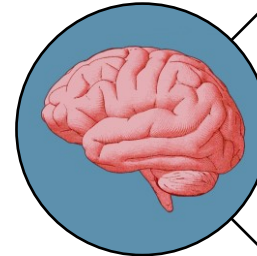
Rato, Abreu & Castro-Caldas  
(2013) *Educational Research*



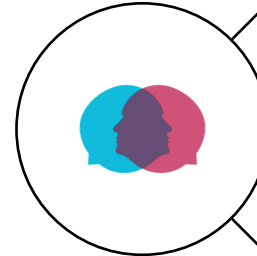
### Ciências da Aprendizagem



- Currículo
- Práticas pedagógicas
- Diferenciação pedagógica
- Avaliação



- Circuitos cerebrais
- Sistema nervoso
- Sinapses
- Neurotransmissores



- Consciência
- Cognição
- Comportamento
- Personalidade

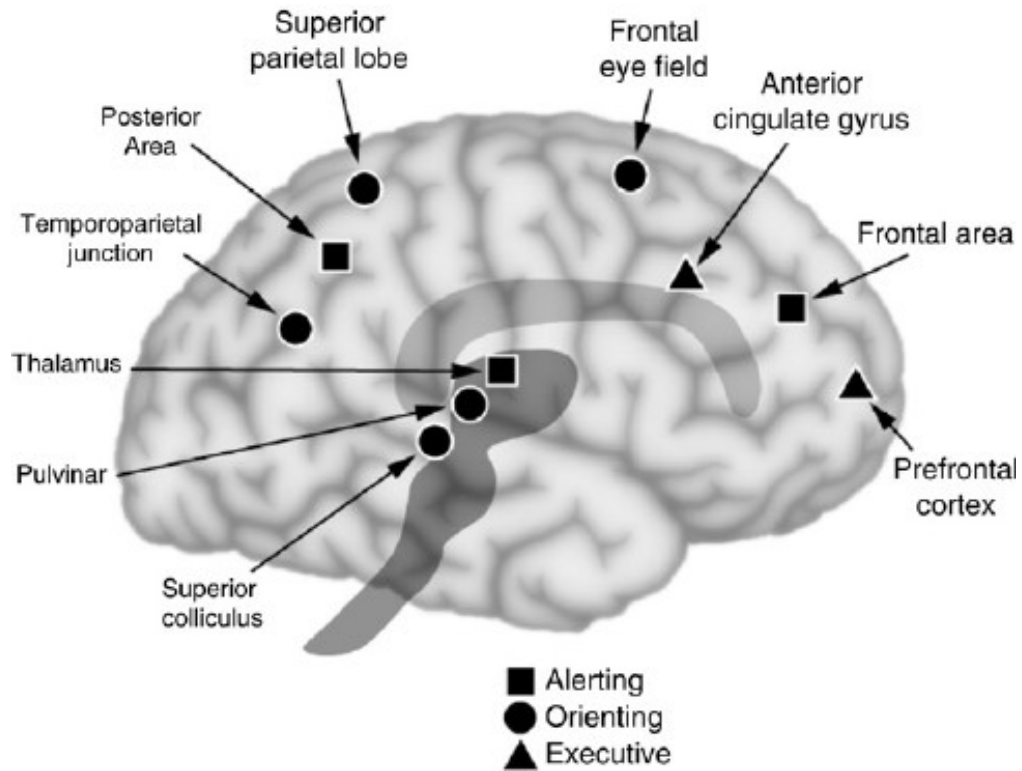


# • O que envolve aprender?

Student Background	Social and Emotional Learning	Cognition
Adverse Experiences	Emotion	Attention
Physical Well-being	Self-regulation	Inhibition
Safety		Short-term Memory
Sleep		Speed of Processing
Socioeconomic Status		Working Memory



# *A atenção: Será que temos de fazer magia na sala de aula?*



Petersen & Posner (2012) Annu Rev Neurosci



# A memória: Será que também temos de treiná-la?

Received: 26 June 2017 | Revised: 31 October 2017 | Accepted: 31 October 2017

DOI: 10.1111/cch.12543

WILEY

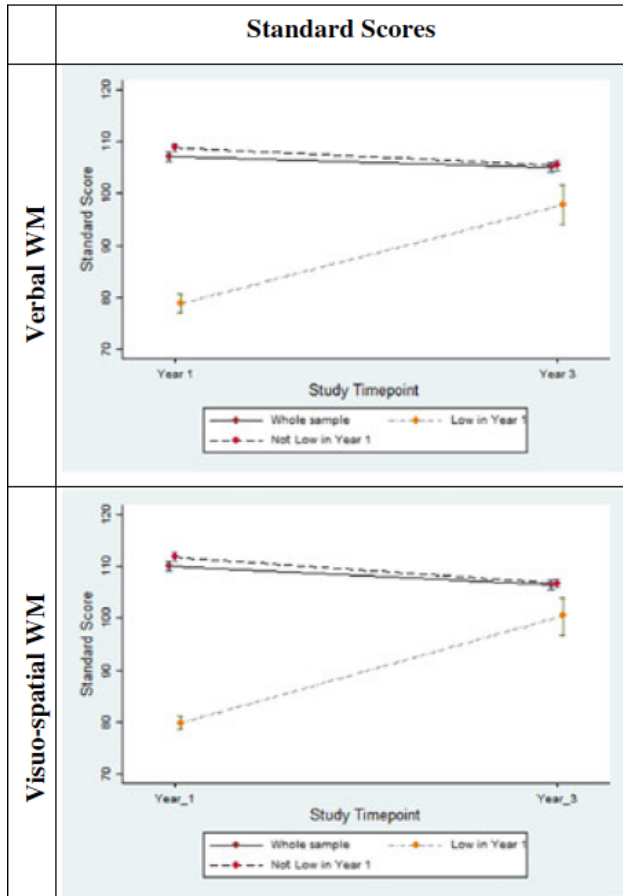
## ORIGINAL ARTICLE

### Changes in verbal and visuospatial working memory from Grade 1 to Grade 3 of primary school: Population longitudinal study

E. Nicolaou<sup>1</sup> | J. Quach<sup>1,2</sup> | J. Lum<sup>3</sup> | G. Roberts<sup>1,2,4</sup> | M. Spencer-Smith<sup>1,5</sup> |  
S. Gathercole<sup>6</sup> | P. J. Anderson<sup>1,2,5</sup> | F. K. Mensah<sup>1,2,4</sup> | M. Wake<sup>1,2,7</sup>

Estudo com 1802 crianças australianas seleccionadas aleatoriamente

**!! Resolução natural aos 8-9A em crianças que inicialmente tinham baixa memória de trabalho aos 6-7A**



## *As funções executivas: Não será o que permite aprender?*



- **Representação do problema**, em que é necessário conhecê-lo e entendê-lo de modo a conceber um plano para o resolver;
- **Planeamento e selecção das acções** mais indicadas para uma maior eficiência;
- **Execução**, em que é preciso que a sequência dos passos possa ser mantida na memória para resultar em acções indicadas e comportamentos;
- **Avaliação**, envolve a detecção de erros e a sua correcção, correspondendo ao comportamento do indivíduo tal como a monitorização da solução final.

(Zelazo et al., 1997)

não há uma pedagogia específica

crianças com NE diferem amplamente,  
ainda que com o mesmo diagnóstico

práticas sob medida para cada criança



Modelo de resposta à intervenção

## Differentiation and individualisation in inclusive education: a systematic review and narrative synthesis

Katharina-Theresa Lindner<sup>a</sup> and Susanne Schwab<sup>b,c</sup>

<sup>a</sup>Center for Teacher Education, University of Vienna, Vienna, Austria; <sup>b</sup>Center for Teacher Education & Faculty of Educational Science, University of Vienna, Vienna, Austria; <sup>c</sup>Optentia research focus area, North-West University, Vanderbijlpark, South Africa

### ABSTRACT

This study integrates research about differentiation and individualisation in inclusive education since the UN Convention on the Rights of Persons with Disabilities in 2006 (United Nations, 2006). The concept of inclusive education for all learners increases the requirement for teachers to create educational spaces that encourage stimulating teaching and learning processes. Accordingly, a methodological shift from the traditional 'one-size-fits-all' model to individualised teaching and learning offers a starting point for educational equity. The aim of this paper is to investigate the progress of differentiated and individualised teaching practices in inclusive classroom settings considering collaboration and teamwork, instructional practices, organisational practices and social/emotional/behavioural practices (see Finkelstein, Sharma, & Furlonger, 2019. "The Inclusive Practices of Classroom Teachers: A Scoping Review and Thematic Analysis." *International Journal of Inclusive Education*, 1–28). Results of a criteria-based review considering papers from 2008 to December 2018 encompass 17 articles that were included in the narrative synthesis. Results indicated that the following aspects are characteristic of inclusive education: collaboration and co-teaching, grouping, modification (of assessment, content, extent, instruction, learning environment, material, process, product and time frame), individual motivation and feedback, and personnel support of students. Implications of the findings and gaps in the research have been outlined.

### KEYWORDS

Inclusive education;  
differentiation;  
individualisation; inclusive  
teaching practices;  
systematic review

Obrigada pela atenção!!

