[c]ita

a WIKIDATA addon for zotero

Scholarly citations in Zotero with the power of Wikidata

Diego de la Hera

31 may 21

wikicite

WIKIMEDIA FOUNDATION

delahera AT gmail DOT com

Workshop plan:

- Introduction (15’):
  - reference managers
  - Wikidata
  - Cita
- Demo (15’)
- Exercise (15’)
- Cita’s future (5’)
- Q&A (10’)

delahera AT gmail DOT com

delahera AT gmail DOT com

npj | Science of Learning

www.nature.com/npjscilearn

ARTICLE OPEN

Social interaction and conceptual change pave the way away from children's misconceptions about the Earth

Diego Pablo de la Hera[1,2], Mariano Sigman[1,2] and Cecilia Ines Calero[1,2]

Throughout development, children undergo moments of abrupt conceptual transitions, often replacing intuitive knowledge with grounded scientific theories. This typically also creates a situation of social conflict, as different children may hold at the same time substantially different theories and explanations about the same phenomenon. The main objective of this work is to understand whether social interaction and exchange of arguments and reasoning may be a catalyzer for conceptual development. Dyads of 7-year-old children with different conceptual understanding of the Earth were asked to reach a consensus about its astronomic and geometric properties. Our results show that mere minutes of deliberation can result in substantial changes in children's conceptual representations, and moreover, that this transition was consistently in the direction of reasoned and scientific opinions. These results provide empirical evidence and suggest specific ways in which peer interaction can be used effectively to promote conceptual change in school settings, in a knowledge domain at the center of this era's post truth and science denial crisis.

npj Science of Learning (2019)4:12 ; https://doi.org/10.1038/s41539-019-0051-3

INTRODUCTION

People often have different and contrasting knowledge and opinions. Science is no exception, and a variety of theories and interpretations are usually available for one same matter. How groups solve conflict and disagreement that result from these

From infancy, children have intuitive understandings of how the world works including, for example, elementary notions of physics, mathematics and social entities.[15,17] These general intuitions, partly built on everyday experiences, often collide with scientific knowledge.[18–20] The majority of researchers agree that they form

scheme 1's conceptual axes, which are more closely related to previously described mental models of the earth,[26] $r(82) = 0.65$, $p = 3.49E{-}11$. A quantitative analysis using the Shapiro–Wilk and Hartigan's dip tests respectively rejected both normality ($W = 0.93$, $p = 1.27E{-}04$) and unimodality ($D = 0.09$, $p = 6.26E{-}06$) for average axis scores, whereas not for average dimension scores ($W = 0.97$, $p = 0.058$, and $D = 0.03$, $p = 0.840$, respectively), which also showed less saturation (Fig. 4b). This indicated that dimension scores provide a measure of conceptual knowledge that is more suitable for assessing knowledge level differences in the sections below.

Score differences between members of a dyad, i.e., between Children M and L (knowledge level *gap*: Δ_{ML}), were calculated for each dimension and then averaged:

$$\Delta^{jk}_{ML} = \left(\sum_{i=1}^{n} d_i^M - d_i^L\right)_{jk} /n, \quad (1)$$

where Δ^{jk}_{ML} is the score difference between Children M and L of the jth dyad in interview k, n is the total number of dimensions ($n = 11$), and d_i^M and d_i^L are the ith dimension score for Children M and L, respectively. Score differences between Interviews 1 and 2 of one participant (knowledge level shift: Δ_{12}) are calculated analogously:

$$\Delta^{j}_{12} = \left(\sum_{i=1}^{n} d_i^1 - d_i^2\right)_{j} /n, \quad (2)$$

REFERENCES

1. Galton, F. Vox Populi. *Nature* **75**, 450–451 (1907).
2. Lorenz, J., Rauhut, H., Schweitzer, F. & Helbing, D. How social influence can undermine the wisdom of crowd effect. *PNAS* **108**, 9020–9025 (2011).
3. Bahrami, B. et al. Optimally interacting minds. *Science* **329**, 1081–1085 (2010).
4. Koriat, A. When are two heads better than one and why? *Science* **336**, 360–362 (2012).
5. Navajas, J., Niella, T., Garbulsky, G., Bahrami, B. & Sigman, M. Aggregated knowledge from a small number of debates outperforms the wisdom of large crowds. *Nat. Hum. Behav.* **2**, 126–132 (2018).
6. Mercier, H. & Sperber, D. 'Two heads are better' stands to reason. *Science* **336**, 979–979 (2012).
7. Heyd-Metzuyanim, E. & Schwarz, B. B. Conceptual change within dyadic interactions: the dance of conceptual and material agency. *Instr. Sci.* **45**, 645–677 (2017).
8. Piaget, J. *The equilibration of cognitive structures: The Central Problem of Intellectual Development* (University of Chicago Press, 1985).
9. Miller, S. A. & Brownell, C. A. Peers, persuasion, and piaget: dyadic interaction between conservers and nonconservers. *Child Dev.* **46**, 992–997 (1975).
10. Mugny, G. & Doise, W. Socio-cognitive conflict and structure of individual and collective performances. *Eur. J. Soc. Psychol.* **8**, 181–192 (1978).
11. Castellaro, M. & Roselli, N. Interacción sociocognitiva entre pares en situaciones simétricas y asimétricas de competencia epistémica. *Rev. de. Psicologia* **36**, 333–365 (2018).

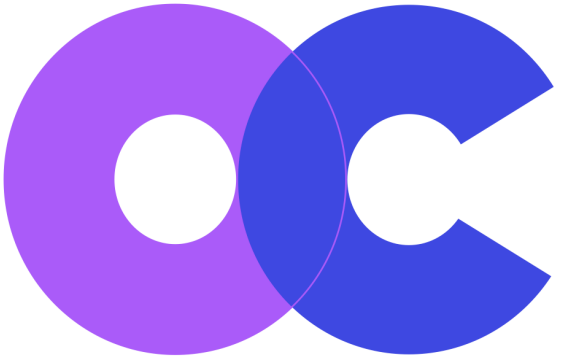
Crossref WIKIDATA

Info | Notes | Tags | Related | Citations

Item Type	Journal Article
Title	Social interaction and conceptual change pave the way away from children's misconceptions about the Earth
Author	de la Hera, Diego Pablo
Author	Sigman, Mariano
Author	Calero, Cecilia Ines
Abstract	Throughout development, children undergo moments of abrupt conceptual transitions, often replacing intuitive knowledge with grounded scientific theories...
Publication	npj Science of Learning
Volume	4
Issue	1
Pages	1-12
Date	2019-08-28 y m d
Series	
Series Title	
Series Text	
Journal Abbr	
Language	en
DOI	10.1038/s41539-019-0051-3
ISSN	2056-7936
Short Title	
URL	https://www.nature.com/articles/s41539-019-0051-3
Accessed	5/28/2021, 1:45:04 PM
Archive	
Loc. in Archive	
Library Catalog	www.nature.com
Call Number	
Rights	2019 The Author(s)
Extra	Number: 1 Publisher: Nature Publishing Group
Date Added	5/28/2021, 1:45:04 PM
Modified	5/28/2021, 1:45:26 PM

delahera AT gmail DOT com

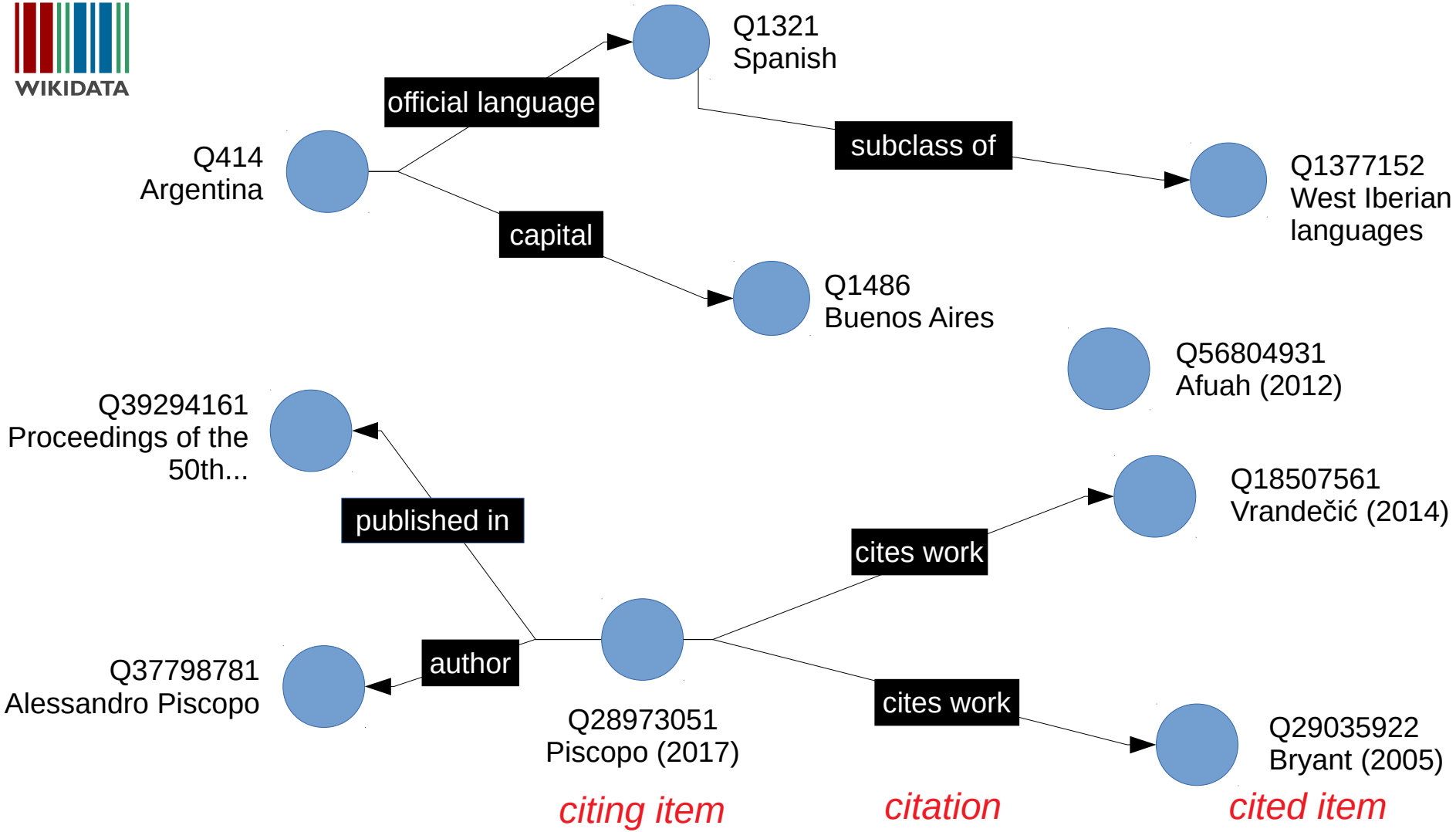
I4OC



Crossref

WIKIDATA

delahera AT gmail DOT com



delahera AT gmail DOT com

WIKIDATA

Incomplete ✗

Collaborative ✓

Wide scope ✓

delahera AT gmail DOT com

npj | Science of Learning

www.nature.com/npjscilearn

ARTICLE OPEN

Social interaction and conceptual change pave the way away from children's misconceptions about the Earth

Diego Pablo de la Hera[1,2], Mariano Sigman[1,2] and Cecilia Ines Calero[1,2]

Throughout development, children undergo moments of abrupt conceptual transitions, often replacing intuitive knowledge with grounded scientific theories. This typically also creates a situation of social conflict, as different children may hold at the same time substantially different theories and explanations about the same phenomenon. The main objective of this work is to understand whether social interaction and exchange of arguments and reasoning may be a catalyzer for conceptual development. Dyads of 7-year-old children with different conceptual understanding of the Earth were asked to reach a consensus about its astronomic and geometric properties. Our results show that mere minutes of deliberation can result in substantial changes in children's conceptual representations, and moreover, that this transition was consistently in the direction of reasoned and scientific opinions. These results provide empirical evidence and suggest specific ways in which peer interaction can be used effectively to promote conceptual change in school settings, in a knowledge domain at the center of this era's post truth and science denial crisis.

npj Science of Learning (2019)4:12 ; https://doi.org/10.1038/s41539-019-0051-3

INTRODUCTION

People often have different and contrasting knowledge and opinions. Science is no exception, and a variety of theories and interpretations are usually available for one same matter. How groups solve conflict and disagreement that result from these

From infancy, children have intuitive understandings of how the world works including, for example, elementary notions of physics, mathematics and social entities.[15,17] These general intuitions, partly built on everyday experiences, often collide with scientific knowledge.[18–20] The majority of researchers agree that they form

scheme 1's conceptual axes, which are more closely related to previously described mental models of the earth,[26] $r(82) = 0.65$, $p = 3.49E{-}11$. A quantitative analysis using the Shapiro–Wilk and Hartigan's dip tests respectively rejected both normality ($W = 0.93$, $p = 1.27E{-}04$) and unimodality ($D = 0.09$, $p = 6.26E{-}06$) for average axis scores, whereas not for average dimension scores ($W = 0.97$, $p = 0.058$, and $D = 0.03$, $p = 0.840$, respectively), which also showed less saturation (Fig. 4b). This indicated that dimension scores provide a measure of conceptual knowledge that is more suitable for assessing knowledge level differences in the sections below.

Score differences between members of a dyad, i.e., between Children M and L (knowledge level *gap*: Δ_{ML}), were calculated for each dimension and then averaged:

$$\Delta^{jk}_{ML} = \left(\sum_{i=1}^{n} d^M_i - d^L_i\right)_{jk} /n, \quad (1)$$

where Δ^{jk}_{ML} is the score difference between Children M and L of the jth dyad in interview k, n is the total number of dimensions ($n = 11$), and d^M_i and d^L_i are the ith dimension score for Children M and L, respectively. Score differences between Interviews 1 and 2 of one participant (knowledge level shift: Δ_{12}) are calculated analogously:

$$\Delta^{j}_{12} = \left(\sum_{i=1}^{n} d^1_i - d^2_i\right)_{j} /n, \quad (2)$$

REFERENCES

1. Galton, F. Vox Populi. *Nature* **75**, 450–451 (1907).
2. Lorenz, J., Rauhut, H., Schweitzer, F. & Helbing, D. How social influence can undermine the wisdom of crowd effect. *PNAS* **108**, 9020–9025 (2011).
3. Bahrami, B. et al. Optimally interacting minds. *Science* **329**, 1081–1085 (2010).
4. Koriat, A. When are two heads better than one and why? *Science* **336**, 360–362 (2012).
5. Navajas, J., Niella, T., Garbulsky, G., Bahrami, B. & Sigman, M. Aggregated knowledge from a small number of debates outperforms the wisdom of large crowds. *Nat. Hum. Behav.* **2**, 126–132 (2018).
6. Mercier, H. & Sperber, D. 'Two heads are better' stands to reason. *Science* **336**, 979–979 (2012).
7. Heyd-Metzuyanim, E. & Schwarz, B. B. Conceptual change within dyadic interactions: the dance of conceptual and material agency. *Instr. Sci.* **45**, 645–677 (2017).
8. Piaget, J. *The equilibration of cognitive structures: The Central Problem of Intellectual Development* (University of Chicago Press, 1985).
9. Miller, S. A. & Brownell, C. A. Peers, persuasion, and piaget: dyadic interaction between conservers and nonconservers. *Child Dev.* **46**, 992–997 (1975).
10. Mugny, G. & Doise, W. Socio-cognitive conflict and structure of individual and collective performances. *Eur. J. Soc. Psychol.* **8**, 181–192 (1978).
11. Castellaro, M. & Roselli, N. Interacción sociocognitiva entre pares en situaciones simétricas y asimétricas de competencia epistémica. *Rev. de. Psicologia* **36**, 333–365 (2018).

Crossref WIKIDATA

Info	Notes	Tags	Related	Citations
Item Type	Journal Article			
Title	Social interaction and conceptual change pave the way away from children's misconceptions about the Earth			
Author	de la Hera, Diego Pablo			
Author	Sigman, Mariano			
Author	Calero, Cecilia Ines			
Abstract	Throughout development, children undergo moments of abrupt conceptual transitions, often replacing intuitive knowledge with grounded scientific theories...			
Publication	npj Science of Learning			
Volume	4			
Issue	1			
Pages	1-12			
Date	2019-08-28			y m d
Series				
Series Title				
Series Text				
Journal Abbr				
Language	en			
DOI	10.1038/s41539-019-0051-3			
ISSN	2056-7936			
Short Title				
URL	https://www.nature.com/articles/s41539-019-0051-3			
Accessed	5/28/2021, 1:45:04 PM			
Archive				
Loc. in Archive				
ibrary Catalog	www.nature.com			
Call Number				
Rights	2019 The Author(s)			
Extra	Number: 1 Publisher: Nature Publishing Group			
Date Added	5/28/2021, 1:45:04 PM			
Modified	5/28/2021, 1:45:26 PM			

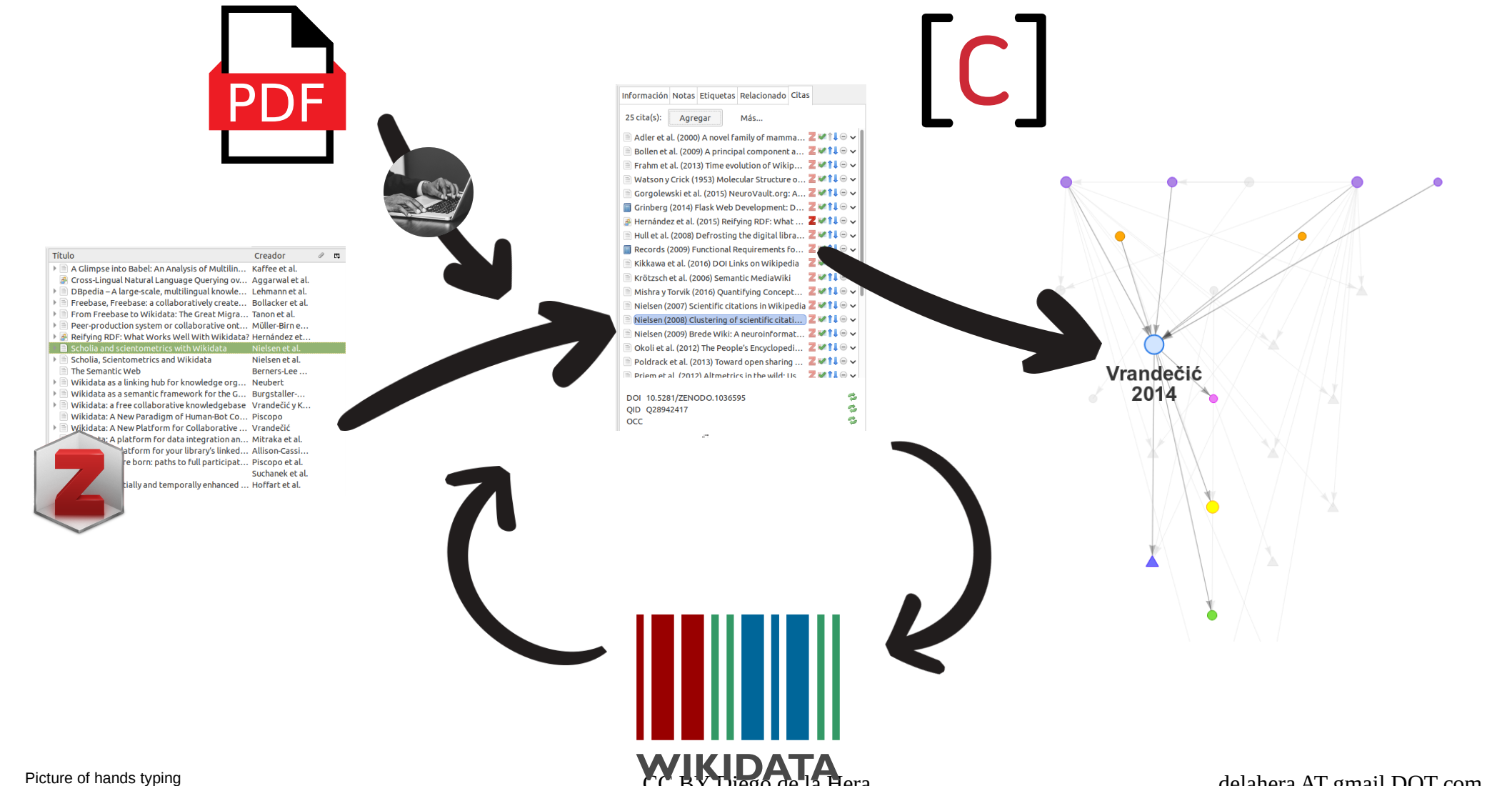
delahera AT gmail DOT com

[c]ita

a WIKIDATA addon for zotero

WIKIMEDIA FOUNDATION

delahera AT gmail DOT com

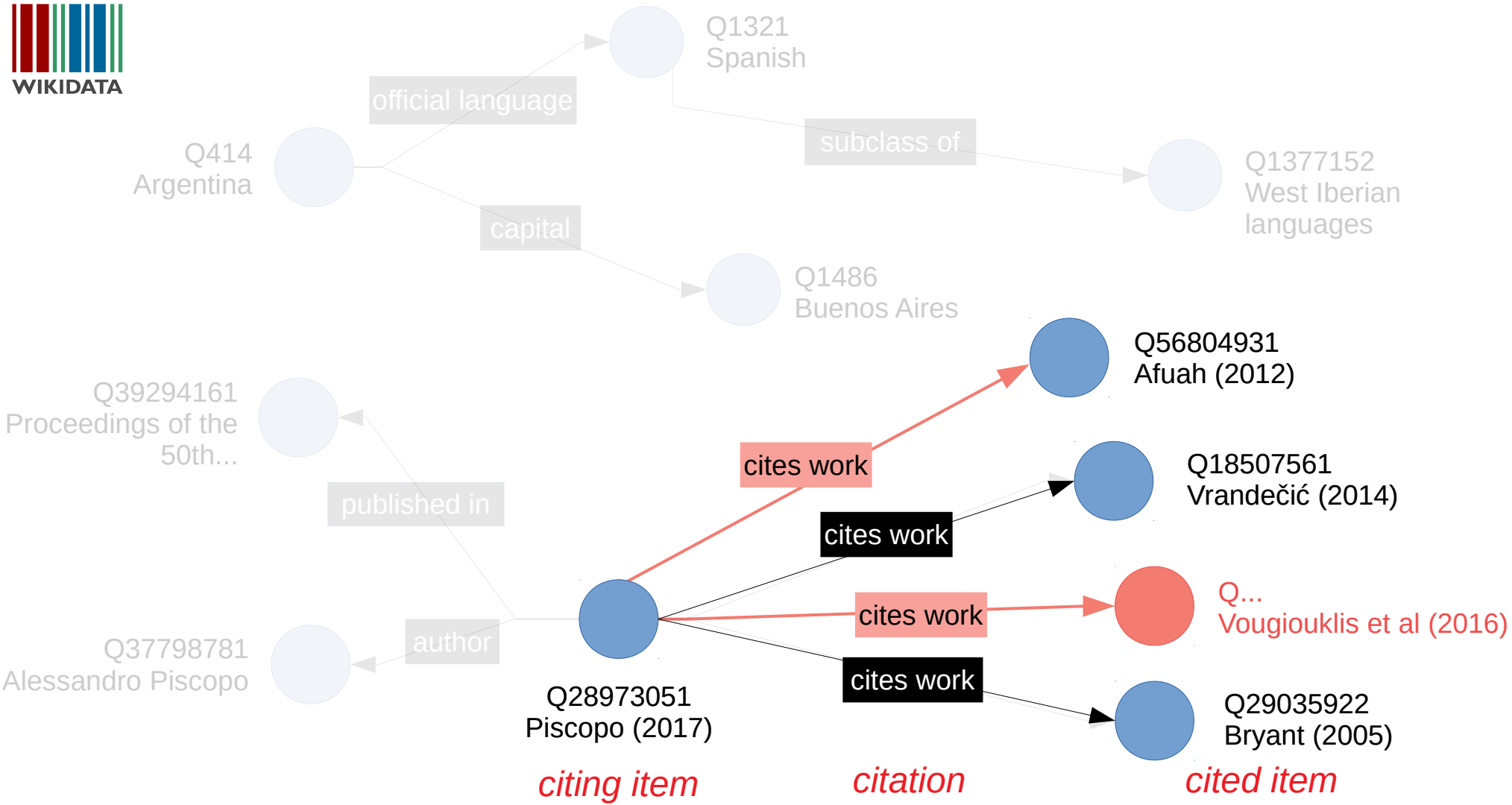


Picture of hands typing
by “Rasheedhrasheed”

delahera AT gmail DOT com

Demo

delahera AT gmail DOT com



delahera AT gmail DOT com

Exercise

delahera AT gmail DOT com

Cita’s future

delahera AT gmail DOT com

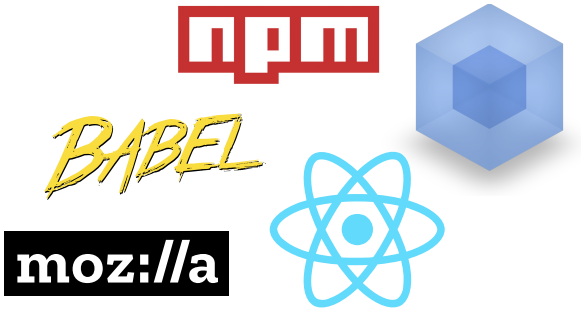
Acknowledgements

Will Shanks (Zutilo)
Tim Wölfle (Local Citation Network)
Philipp Zumstein (traductores Wikidata)
Maxime Lathuilière (wikibase-sdk/edit)

Liam Wyatt

Evelin Heidel (scann)

translatewiki.net



delahera AT gmail DOT com

[c]ita

a WIKIDATA addon for zotero

Diego de la Hera

https://diegodlh.conversodromo.com.ar/
@diegodlh

delahera AT gmail DOT com