

# Learning new foreign vocabulary in the classroom

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# What does it mean to know a word?



- Background
  - What is the project about?
  - Why is it important?
- Study 1: Spanish in primary schools
  - Study design
  - Methodology
- Systematic review
  - What is a systematic review?
  - Why are we doing one?
- Discussion



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- Started my PhD in September 2022
- Investigating the role of written word forms in foreign language acquisition in primary school
- Supervised by:



Professor. Jessie Ricketts



Dr. Saloni Krishnan

# Why is this important?



- Only 35% of UK adults report speaking one or more foreign language whereas European average is 65% (Eurostat, 2019)
  - Important for travel, business and diplomacy



Research and analysis

## Research review series: languages

Published 7 June 2021

- Decrease in students taking languages at GCSE-level
  - In 1998, 78% of students sat languages GCSE exams (Rodeiro, 2019)
  - When they were made non-compulsory in 2004, only 47% of students took languages GCSES

# Why is this important?



- In 2014, it became compulsory for KS2 students (years 3-6) to learn a language in school
- Language Trends Survey 2020 (Collen, 2020)
  - Lack of implementation framework means variation across schools
  - Teachers want more guidance on:
    - how much time to spend on language teaching
    - what content to teach
    - subject-specific professional development
    - research-informed resources

# Where does this project fit in?



- Teachers want more guidance on:
  - how much time to spend on language teaching
  - what content to teach
  - subject-specific professional development
  - **research-informed resources**
- Providing empirical evidence to aid research-informed resources
- How does foreign language acquisition work in the primary school classroom?

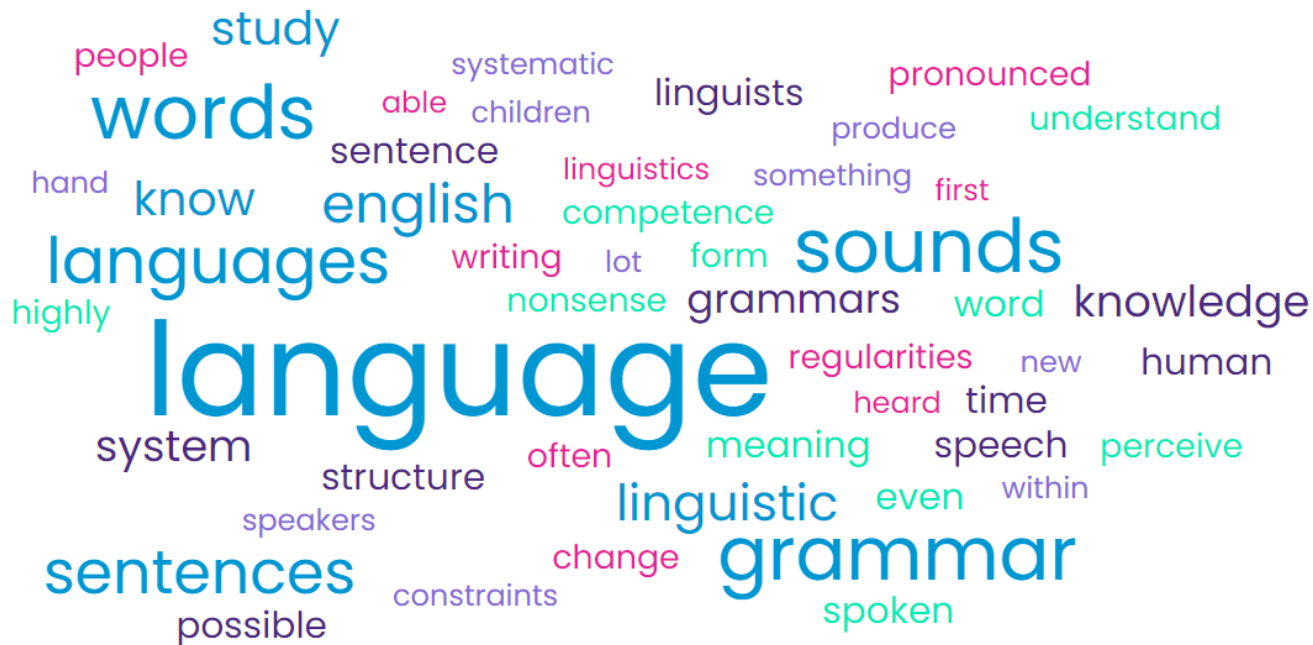




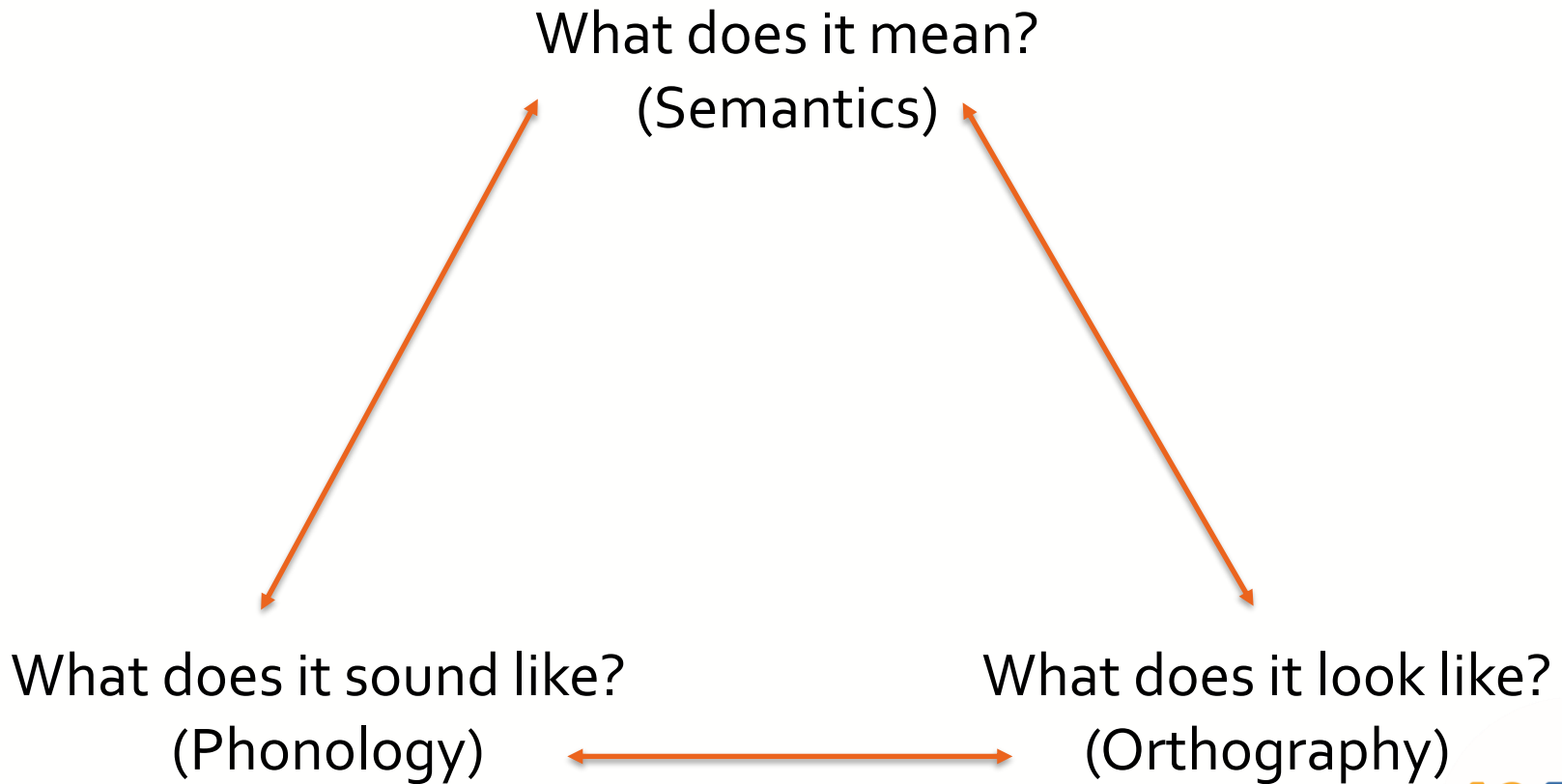
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- Individual words are the first thing that are learnt about a language
- But what does it actually mean to know a word?



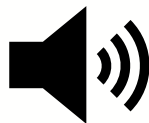
# What does it mean to know a word?



# What does it mean to know a word?



A four-legged animal  
that barks and is kept  
as a pet

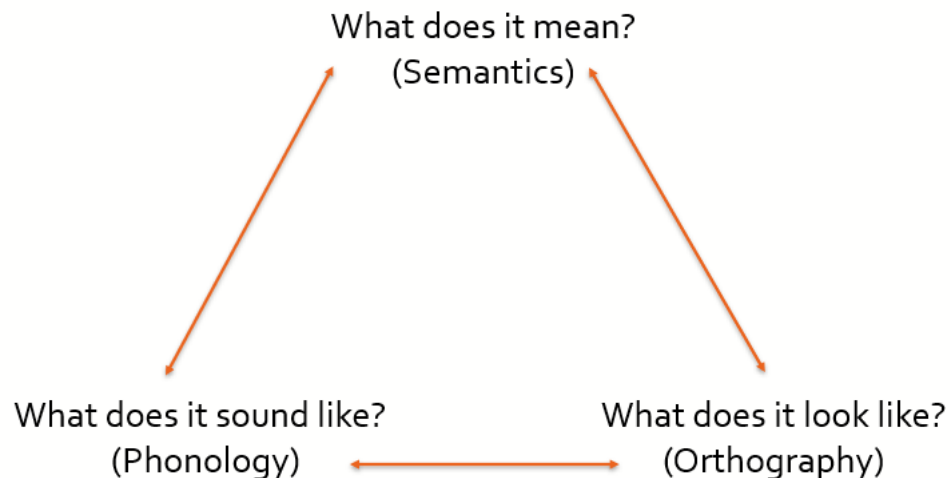


Dog

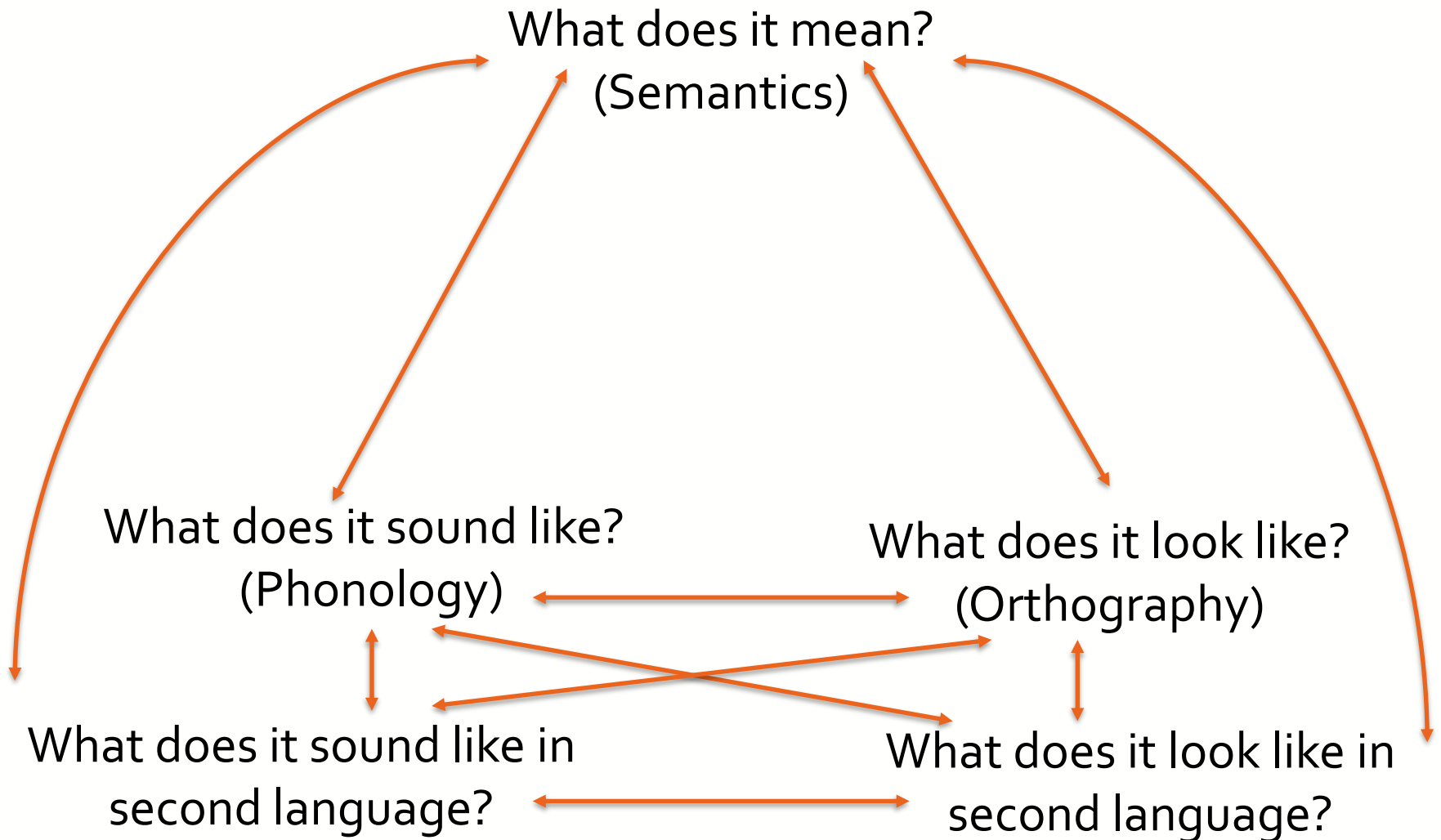
# What does it mean to know a word?



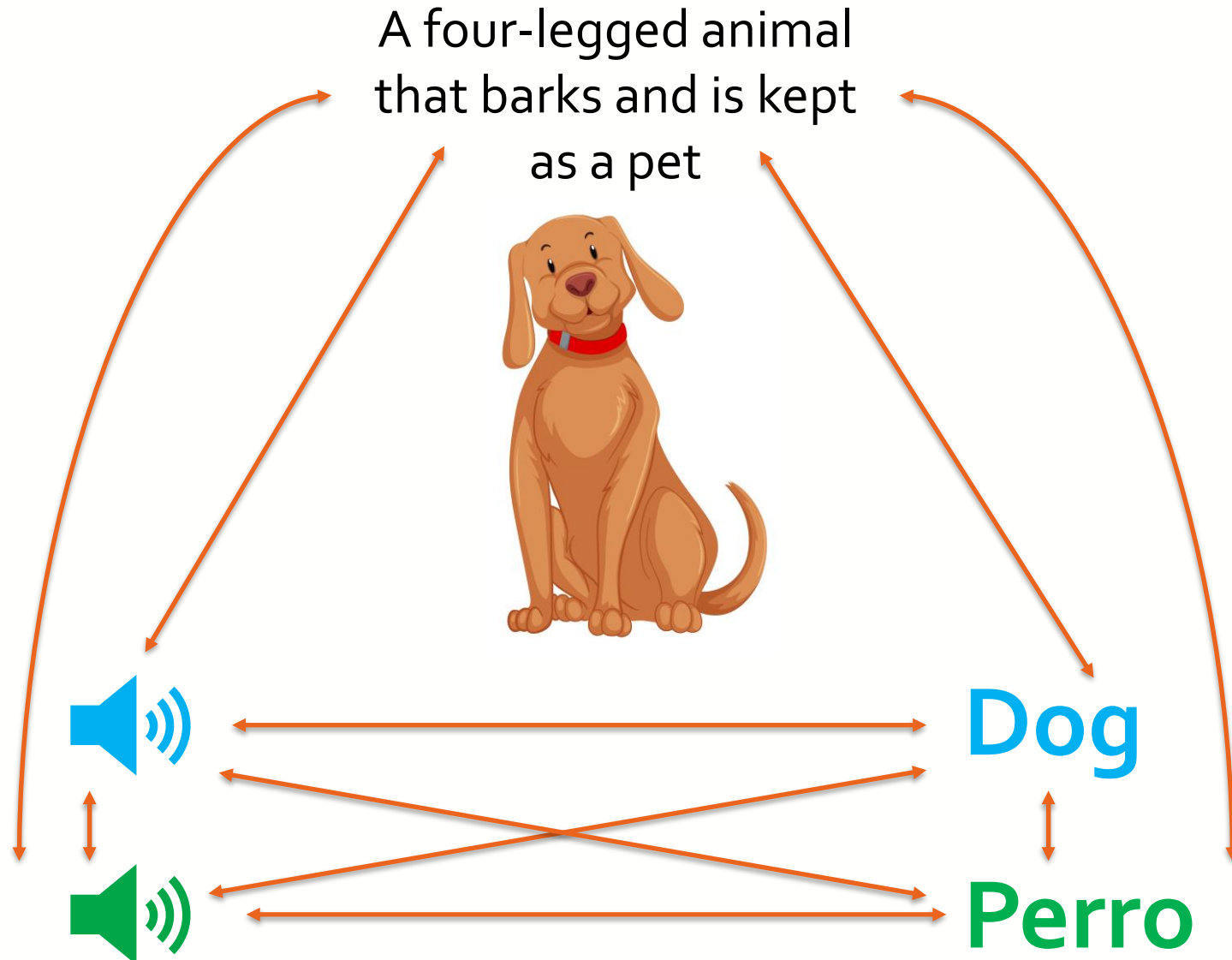
- Lexical quality hypothesis (Perfetti & Hart, 2002)
  - High quality lexical representation → knowing what a word means, how it sounds and how it is spelt
  - Knowing one aspect brings about other two
  - Someone with lots of high quality lexical representations would have a deep and wide vocabulary knowledge



# What does it mean to learn a word in a second language?



# What does it mean to know a word in a second language?



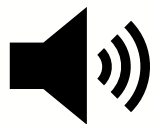


- Orthographic facilitation (Ricketts et al., 2009; Rosenthal & Ehri., 2008)
  - Emphasising the written word form leads to better word learning
  - Many studies that show that this is the case in native language word learning
  - As far as we know there is only one study that investigates this in a second language (Krepel et al., 2021)
    - Taught English words to Dutch primary school children



- Typical orthographic facilitation studies:
  - Either teach some words with orthography and some without or they teach some participants all the words with orthography and then other participants all the words without orthography

Orthography condition



Dog



No orthography condition





- Typical orthographic facilitation studies:
  - Either teach some words with orthography and some without or they teach some participants all the words with orthography and then other participants all the words without orthography
  - Words are taught in one-to-one sessions with a researcher in a highly controlled environment
  - Typically have small samples (30 per condition)

# Why do we need this study?



## What do we know?

- Orthography facilitates word learning in native language and limited evidence in second languages
- Orthography facilitates word learning when words are taught in highly-controlled environments and in one-to-one sessions

## What gaps are there?

- No evidence for this effect in more naturalistic conditions
- No evidence where English is the native language
- Larger sample size



1. Does orthography facilitate learning Spanish words in 7-10 year olds?
2. Is orthographic facilitation still seen when words are taught to whole classes?



- English is an example of a non-transparent language
  - Lack of spelling-sound consistency

**Y A C H T**

- Spanish is a transparent language
  - Means words are spelt as you would expect from the sounds



- Krepel et al (2021) taught English (non-transparent language) to Dutch children (transparent language)
- We are interested in whether orthography is still beneficial when it is the other way round (teaching a transparent language to participants who speak a non-transparent language)

# Why Spanish?



- Spanish is also one of the most commonly taught languages in primary schools so seems an appropriate choice when wanting to see how the effect works in a classroom setting





- 7-10 years old in British primary schools
  - Translates to Year 3-5
- Large sample (250-300 students)
  - Part of what makes study novel
- Recruited from local schools
  - More on this later...





- Most tasks completed with whole class so each class will be assigned to one of two conditions:
  - Taught new Spanish words with written word present (orthography present condition)
  - Taught new Spanish words with written word absent (orthography absent condition)
- Also have a third condition if schools has odd number of classes per year group that involves using a made up written form for the new Spanish word



- 12 Spanish nouns
  - Bi- or tri-syllabic words
  - Looked at age of acquisition data to ensure the students will know the word in English and native Spanish speakers of the same age would also know it
  - Pictures that clearly represent the word

# Stimuli



Bolso  
Bag



Rana  
Frog



Pomo  
Doorknob



Dedal  
Thimble



Enchufe  
Socket



Taladro  
Drill



Cuenco  
Bowl



Granero  
Barn



Oruga  
Caterpillar



Tetera  
Kettle



Cabra  
Goat



Manopla  
Mittens

# Study design



## Session 1

Whole class

Pre-test

BPVS

Spanish vocab  
knowledge

1 hour

## Session 2

Whole class

Word learning  
task

30 mins

## Session 3

Whole class

Word learning  
task

20 mins

Individual

Picture naming task

Cued picture naming  
task

10 mins per pupil

## Session 4

Individual

WASI Matrices

TOWRE

Picture naming task

Cued picture naming  
task

Spelling task

20-30 mins per pupil

Background measures

Pre-test

Experimental task

Post-test




## Pre-test

- Measuring whether students already know any of the 12 Spanish words that are being used in this study

### Pre-test

Please wait until the researcher says to start!

Can you name these things? What about their names in Spanish?

	<b>English:</b>
	<b>Spanish</b>



## Background measures

- British Picture Vocabulary Scale (BPVS; Dunn et al., 2009)
  - Measure of vocabulary knowledge
  - Participants hear a word and have to choose which one of four pictures matches the word they have heard
- Test of Word Reading Efficiency (TOWRE; Wagner et al., 2011)
  - Measure of reading ability
  - Two parts:
    - 45 seconds to read as many words as possible
    - Another 45 seconds to read as many non-words as possible

<https://doi.org/10.17605/OSF.IO/MSB9Y>



## Background measures

- Wechsler Abbreviated Scale Intelligence (WASI) matrices subtest (Wechsler., 2013)
  - Measures non-verbal reasoning
  - Shown an incomplete pattern and have to choose the image that completes the pattern
- Spanish Vocabulary Knowledge test
  - Designed for the purpose of this study
  - Likely to have very low scores as children (hopefully) won't have any Spanish knowledge
  - Same as the BPVS but with Spanish words



## Word learning task

First item: example of an orthography  
present trial

Second item: example of an orthography  
absent trial

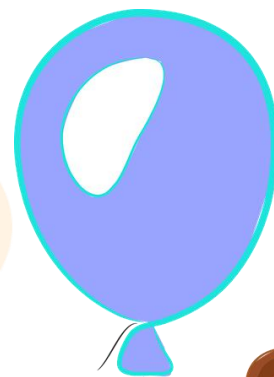


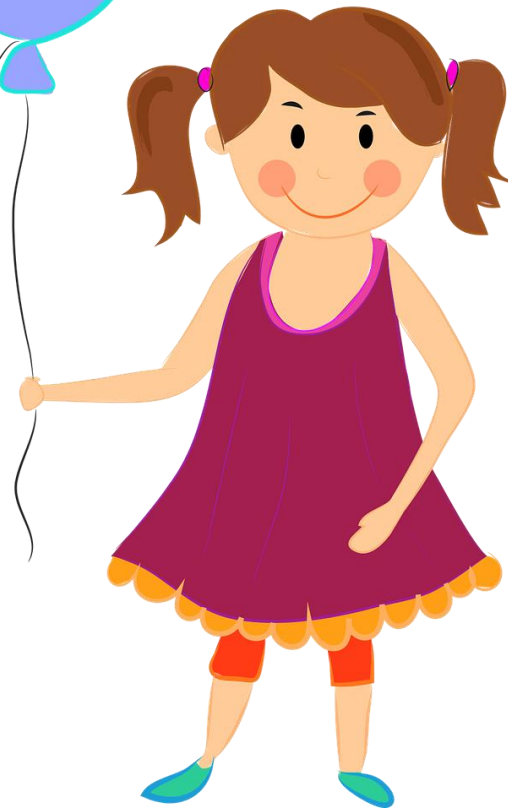
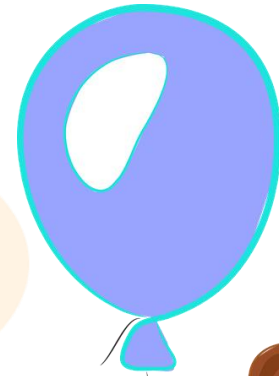
We're going to  
learn some  
new Spanish  
words!





Bolso







## Post-tests

- Picture naming task
  - Participant will see the image and asked what it is called in Spanish
- Cued picture naming task
  - Same as the above task but also provided with the first sound of the name
  - Accounts for partial word learning
- Spelling task
  - Participant will hear the word and asked to write it down



# Any questions on this study?

## Orthographic support for Spanish word learning in primary school children

Contributors: Courtney Hooton, Jessie Ricketts, Saloni Krishnan

Date created: 2023-05-01 05:14 PM | Last Updated: 2023-06-09 05:10 PM

Create DOI

Category: Project

Description:

<https://doi.org/10.17605/OSF.IO/MSB9Y>



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# What is a systematic review?



- Type of literature review that identifies, selects and critically reviews relevant research on a specific research question
- Has same level of rigor as empirical research
  - Clear, replicable methodology
  - Follows set stages
  - Specific search terms



## Literature review

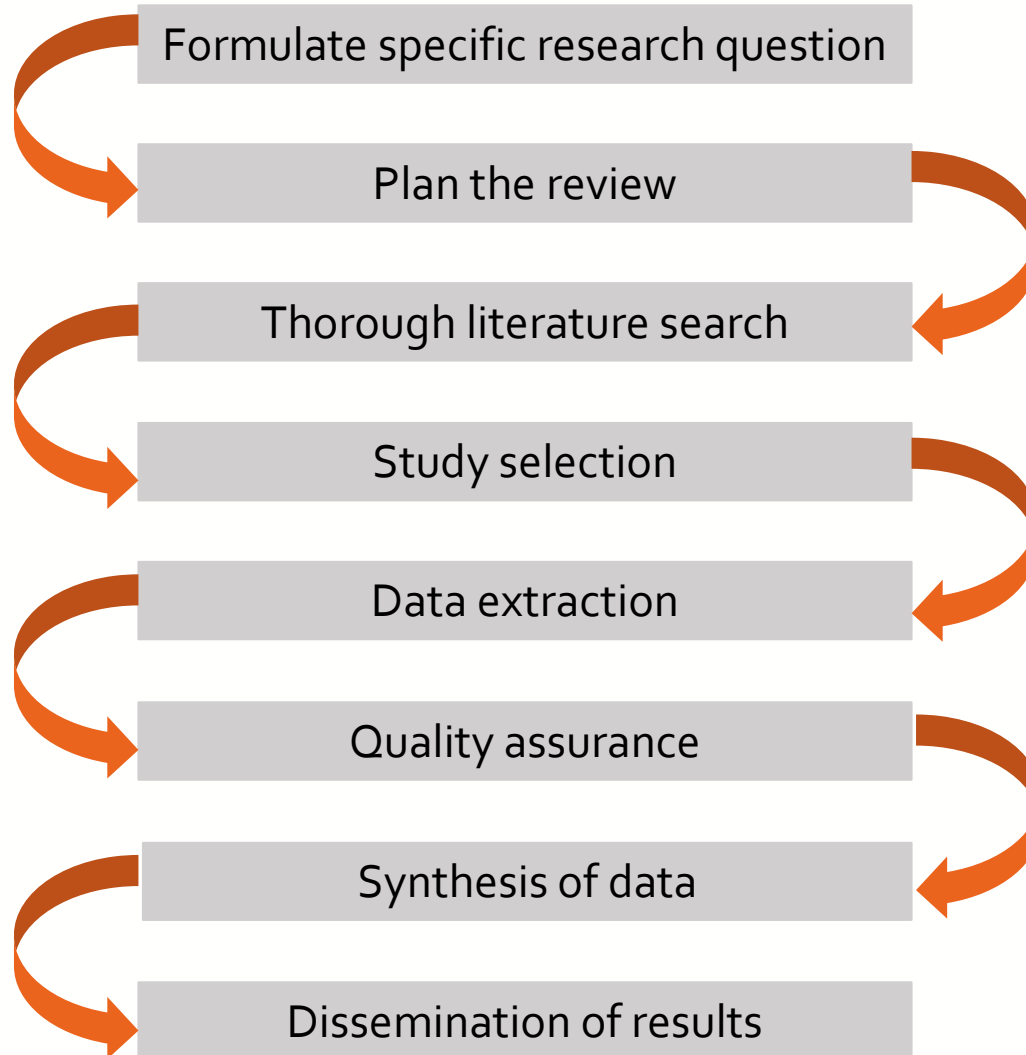
- Description of literature
- Selected by author based on their expertise and availability
- Studies and findings are described
- Allows for bias

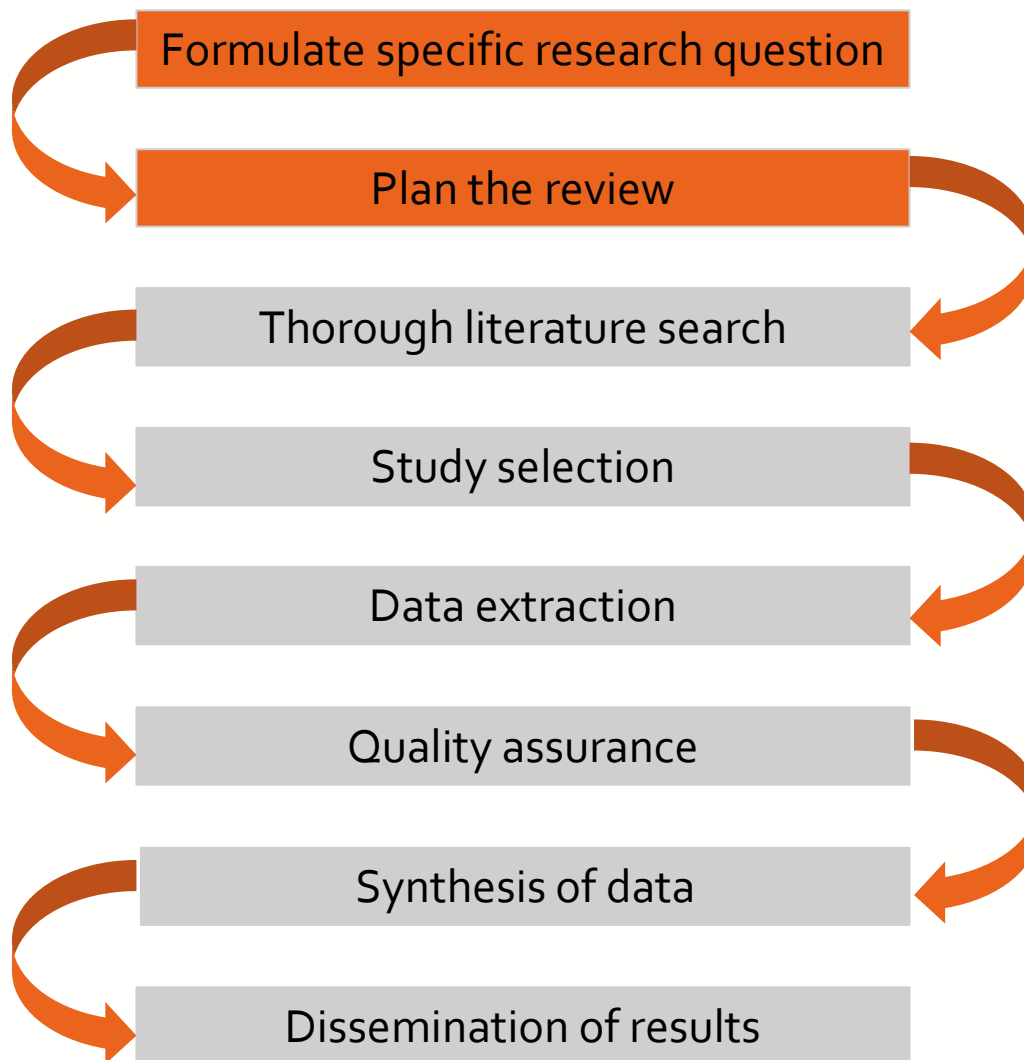
## Systematic review

- Pre-determined research question and protocols
- Study selection determined by objective search protocols
- Data extracted and synthesized following guidelines



# Process of a systematic review





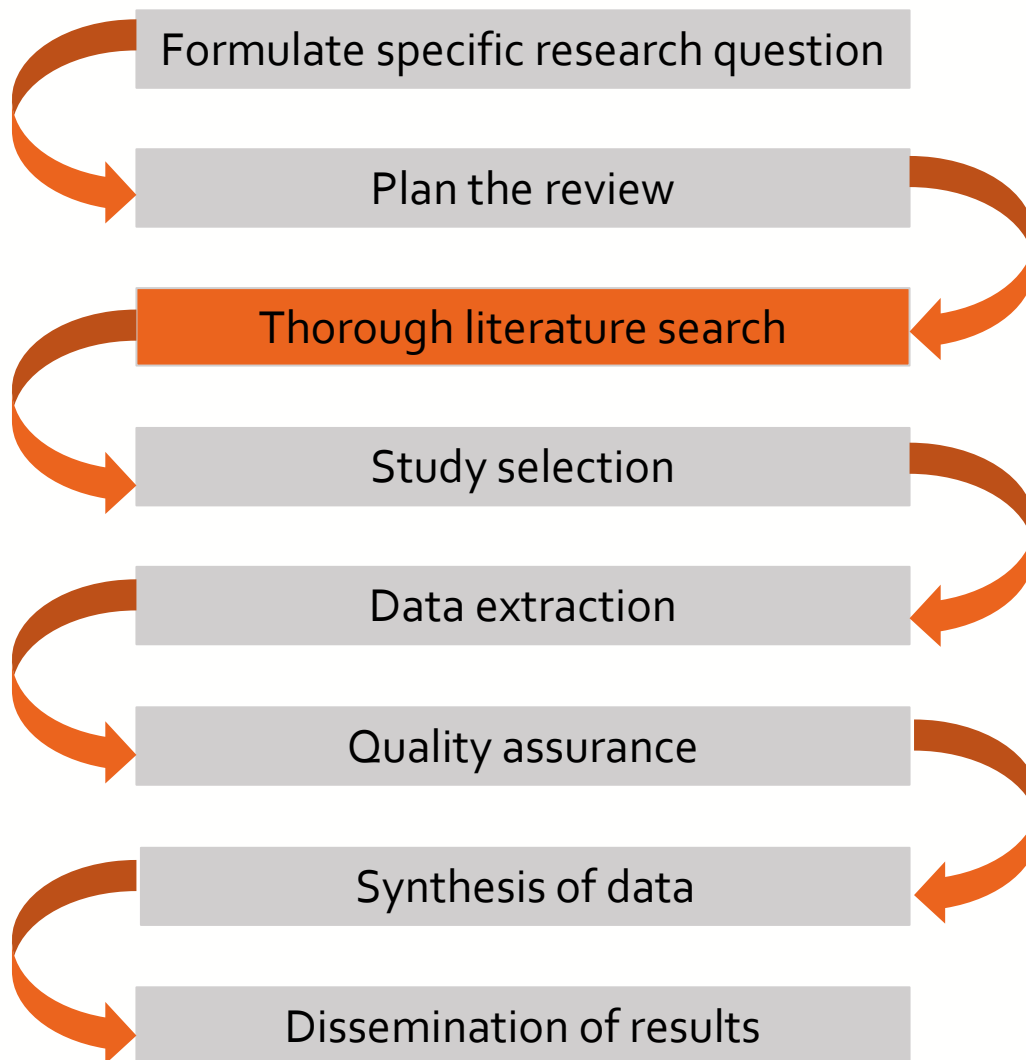


## 1. Formulate a specific research question

- Needs to be specific
  - Too vague and you'll have 100's of 1000's of papers to review

## 2. Plan the review

- Set out clear aims and what methodology you will use before searching the literature
  - Inclusion/exclusion criteria
  - Which search terms you will use





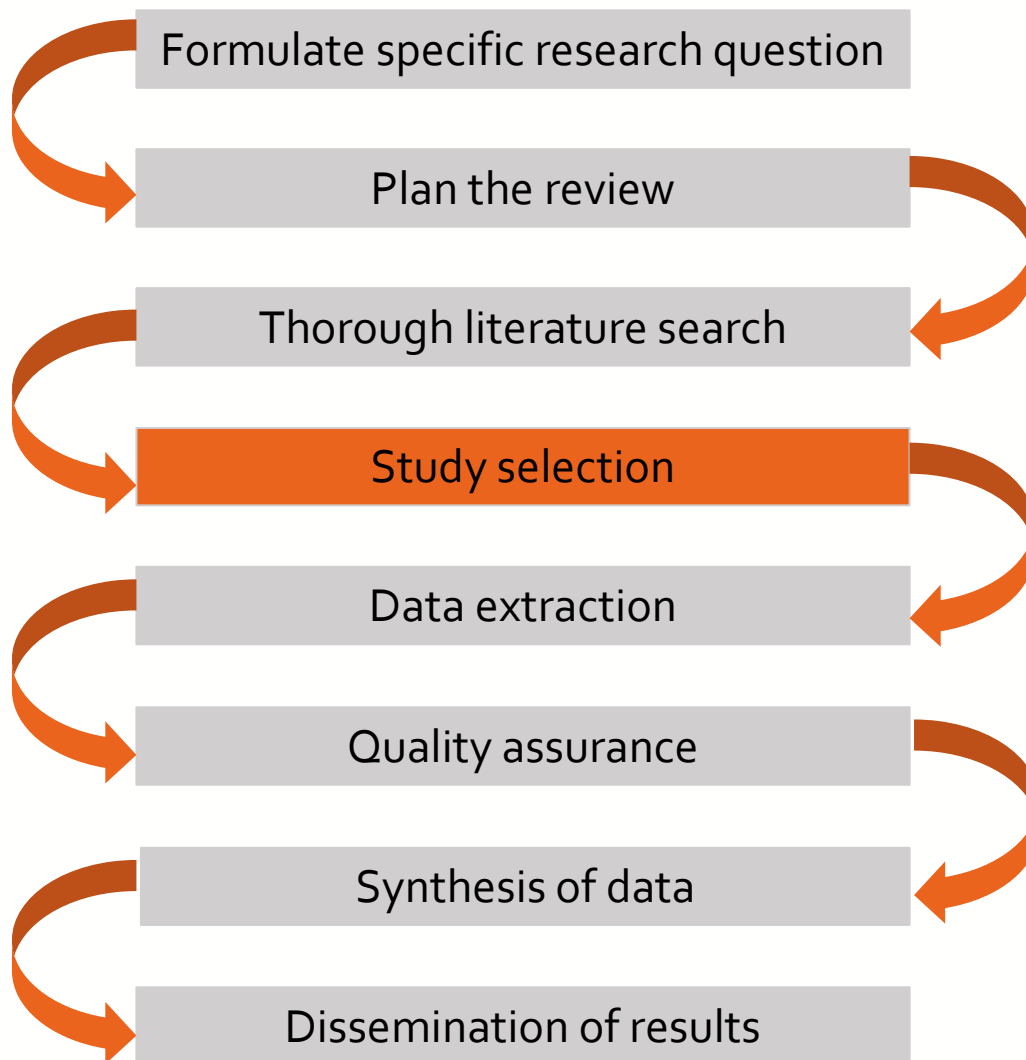
## 3. Thorough literature search

- Use specific search terms to identify all relevant research about the topic
- Use several data bases
- Use trial and error of AND/OR searches until you find search term/s that you are confident cover all relevant research



## 3. Thorough literature search

- Download all search results into a referencing system e.g., EndNote
  - Not uncommon to have 1000+ studies at this point
- Can then deduplicate results which tends to lower numbers drastically



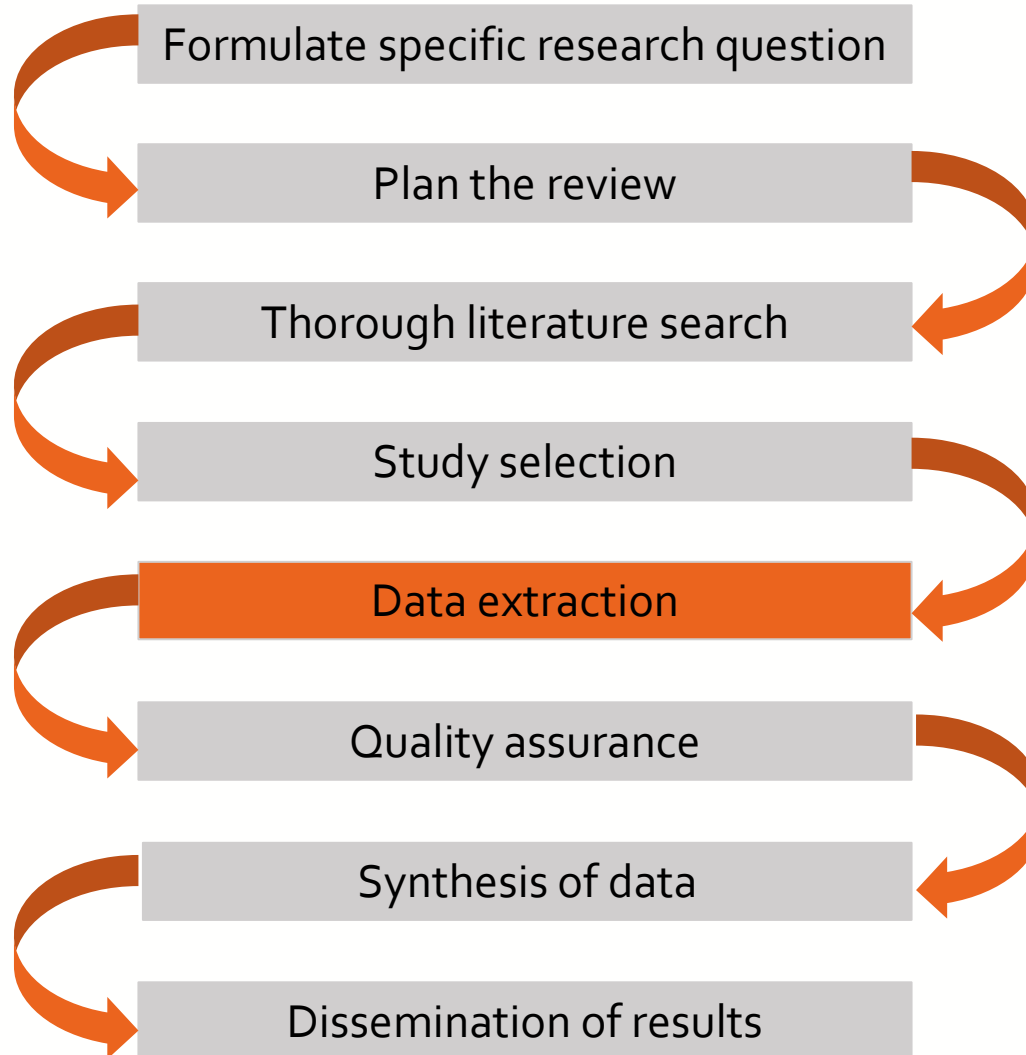


## 4. Study selection

- Read ALL titles and abstracts
- Decide whether to include study or not using inclusion/exclusion criteria determined in stage 2 (plan review)
- Once you have narrowed down to studies that seem relevant based on title and abstracts, then you read the full papers



# Process of a systematic review





## 5. Data extraction

- Record information from studies e.g., participants, methodology, measures
- Make sure you are recording the same information from each paper
  - Easiest way to do this is with a table

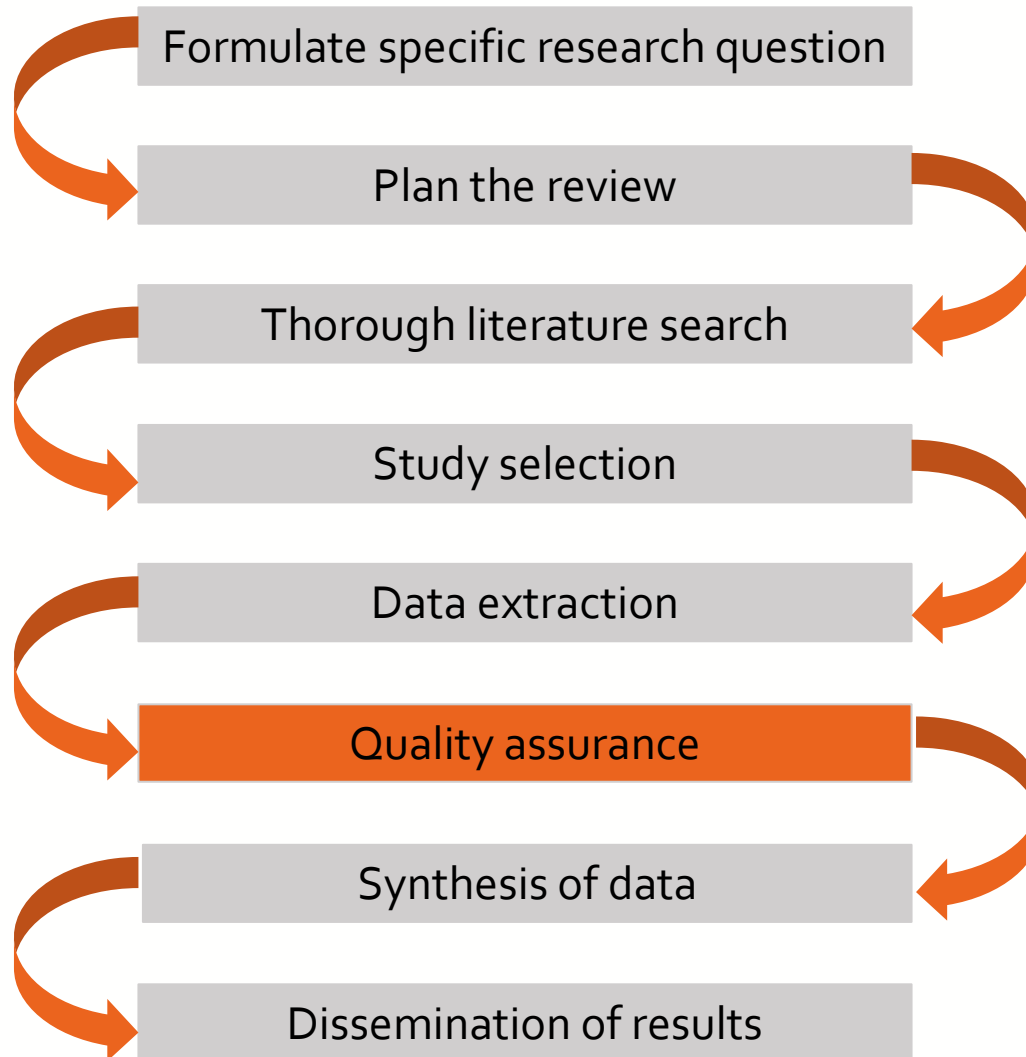


## Colenbrander et al. (2018)

Table 3. Training procedures.

Authors	Delivery method	Semantic information learnt	Orthography: incidental or explicit	Visual control condition	Procedure
Baron et al. (2018)	One to one	Pictures of monsters	Incidental	No	Learning and assessment phases were alternated across four blocks. In learning phases, children heard, or heard and saw the name of an object and touched a screen to select the correct monster. They received feedback as to accuracy. In assessment phases, children completed a naming task. In Block 1, there were two trials per word, and in Blocks 2–4, there were 15 trials (17 exposures in total).
Chambré et al. (2017)	One to one	Pictures and definitions	Manipulated between subjects	No	Participants saw a picture, were told a name and definition, and then asked to repeat the word. In the no-orthography condition, they repeated the word twice. They then completed nine test trials with corrective feedback. In odd trials, they recalled the pronunciation from a picture. In even trials, they heard a word and provided the definition. Posttests occurred the day after training and 14 days later.

# Process of a systematic review

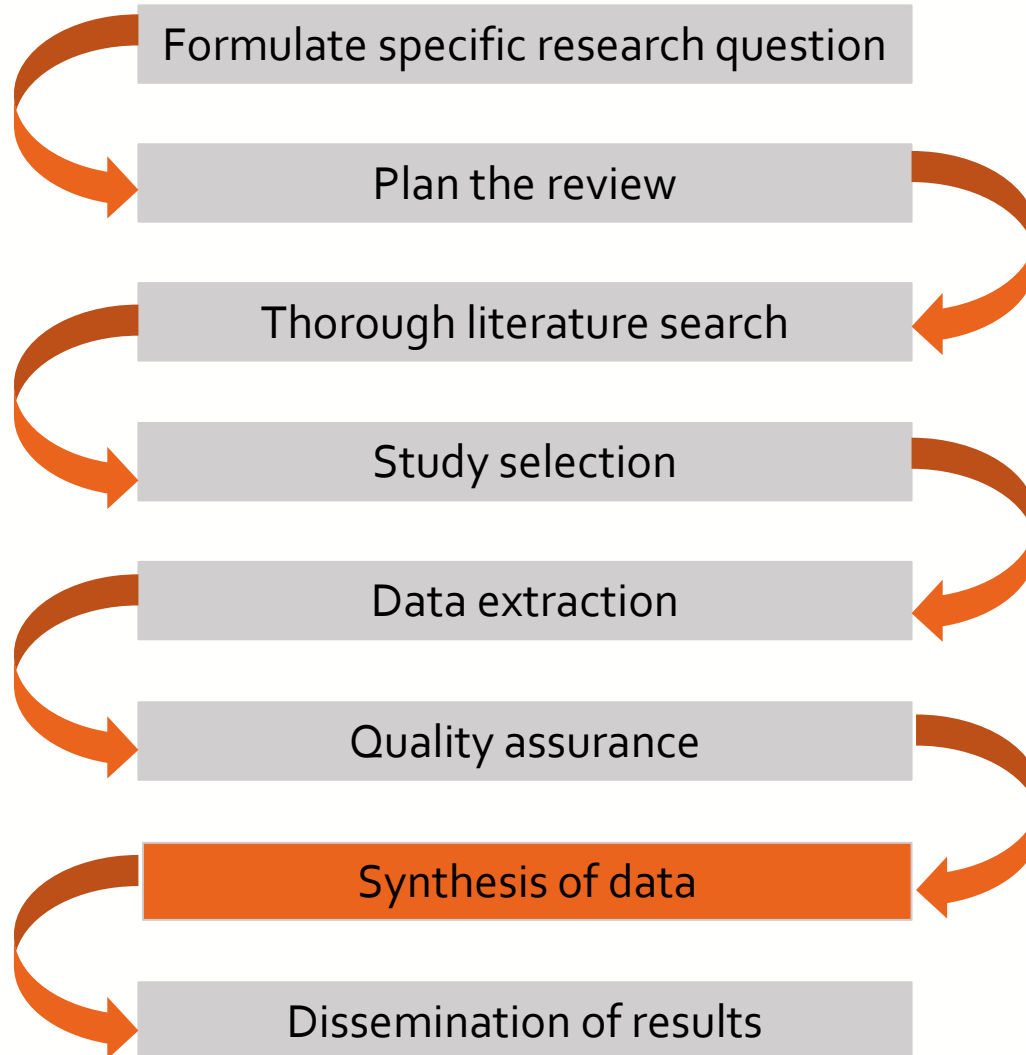




## 6. Quality assessment

- Identifying and discussing possible limitations of the studies e.g.:
  - Confounding variables
  - Bias
  - Validity
  - Analysis chosen

# Process of a systematic review

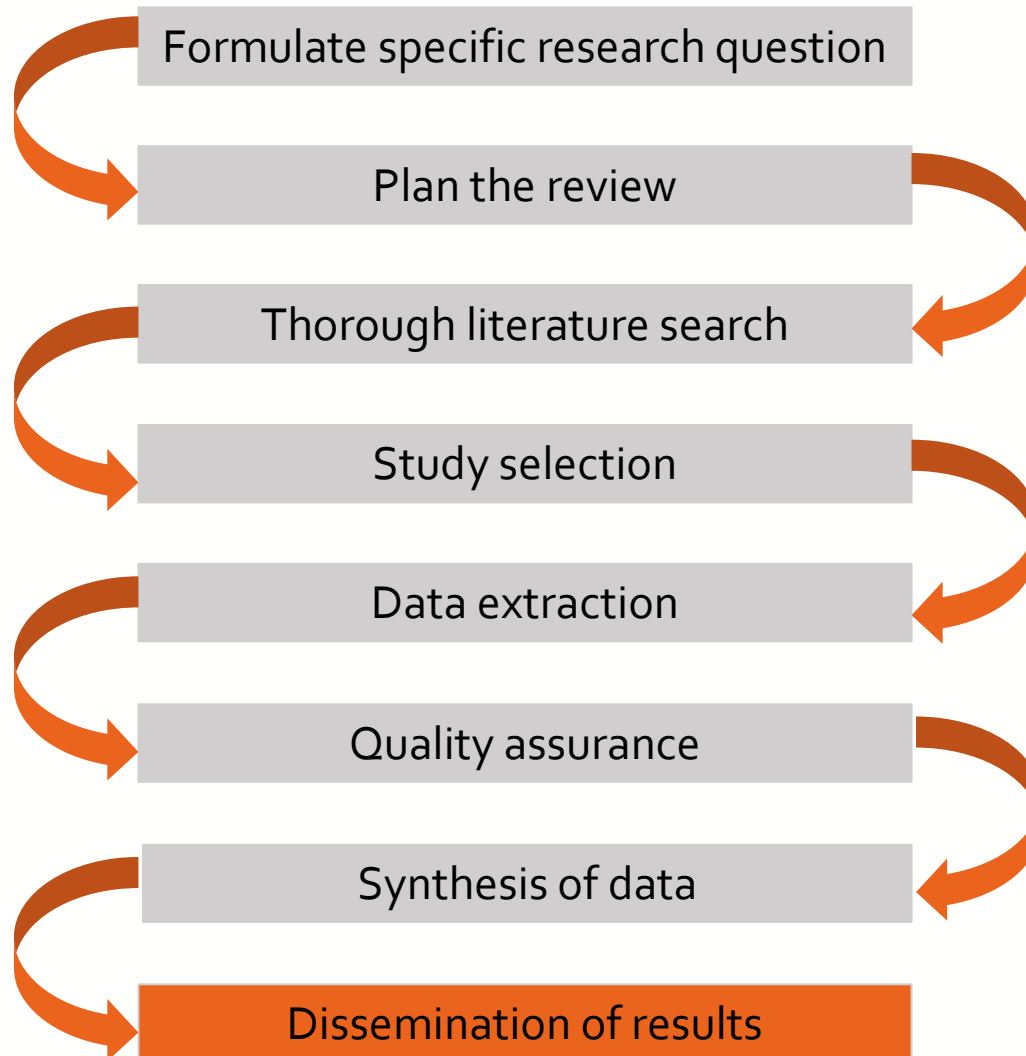




## 7. Synthesis of data

- Make sense of data across the final studies
- A few ways to do this:
  - Quantitative → statistical analysis (usually a meta-analysis)
  - Narrative → describing the findings e.g., “23 studies found X whereas 17 studies found Y”
  - Qualitative → summarising non-numerical data

# Process of a systematic review







## 8. Dissemination of results

- Putting everything into a written review

PRISMA checklist			Reported on page #
Section/topic	#	Checklist item	
<b>TITLE</b>			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	
<b>METHODS</b>			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., $I^2$ ) for each meta-analysis.	



## 8. Dissemination of results

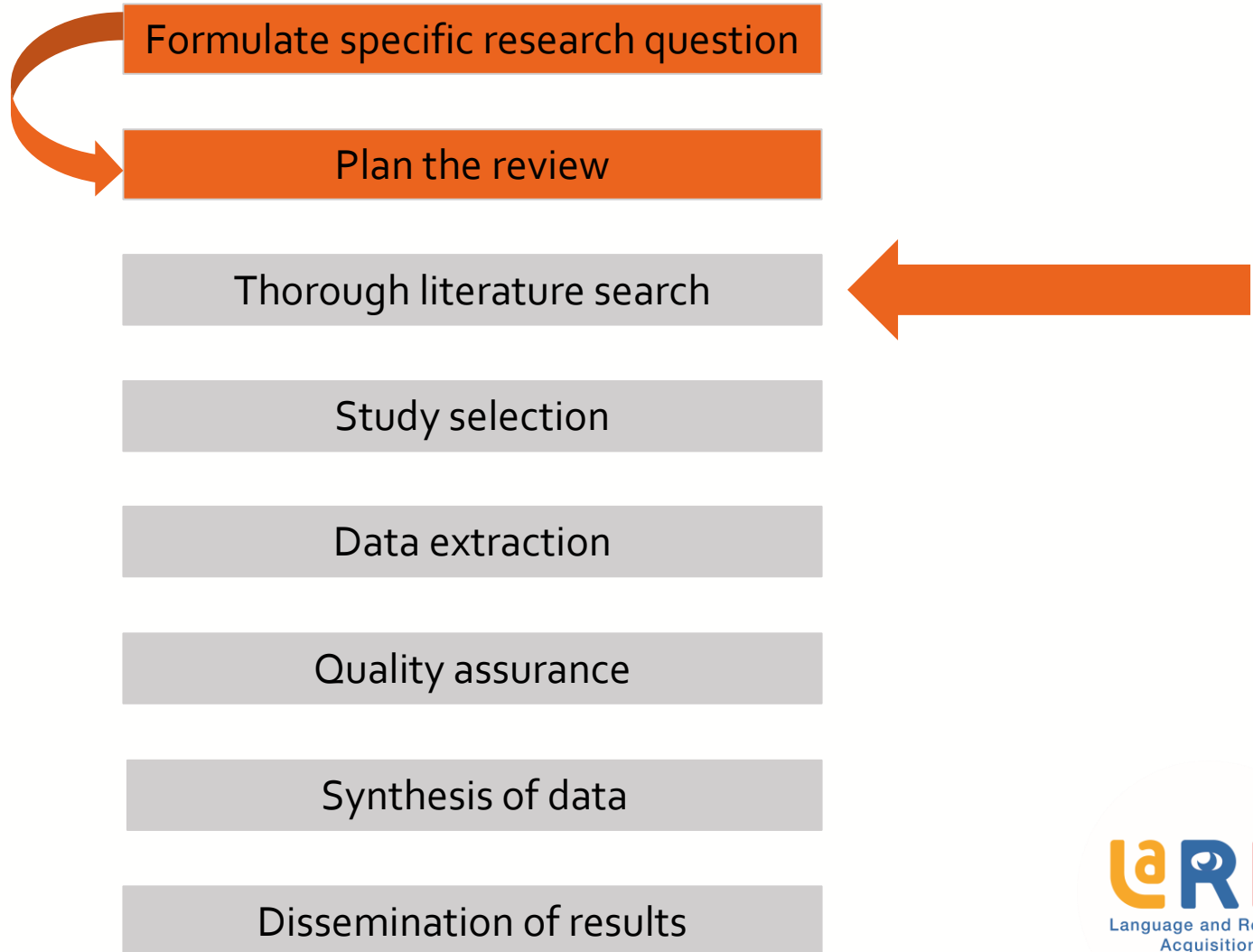
Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	
<b>RESULTS</b>			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	
<b>DISCUSSION</b>			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	
<b>FUNDING</b>			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	

# Why are we doing a systematic review?



- Wanting to get an understanding of what research currently says about teaching new foreign words to children
- May help to inform methods for the previously discussed study

# Where I'm at currently

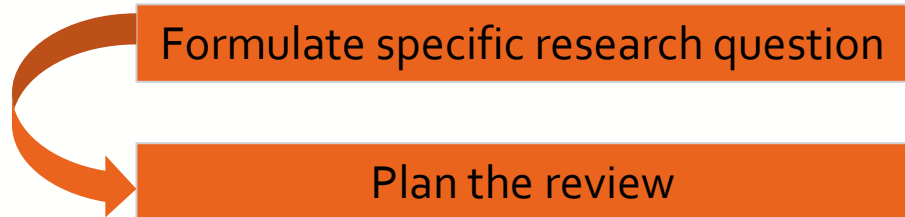




## Formulate specific research question

- How is new vocabulary taught to children in the context of foreign language learning?
- Sub question:
  - Is orthography important when teaching new vocabulary to children in the context of foreign language learning?

# Where I'm at currently



## Inclusion criteria:

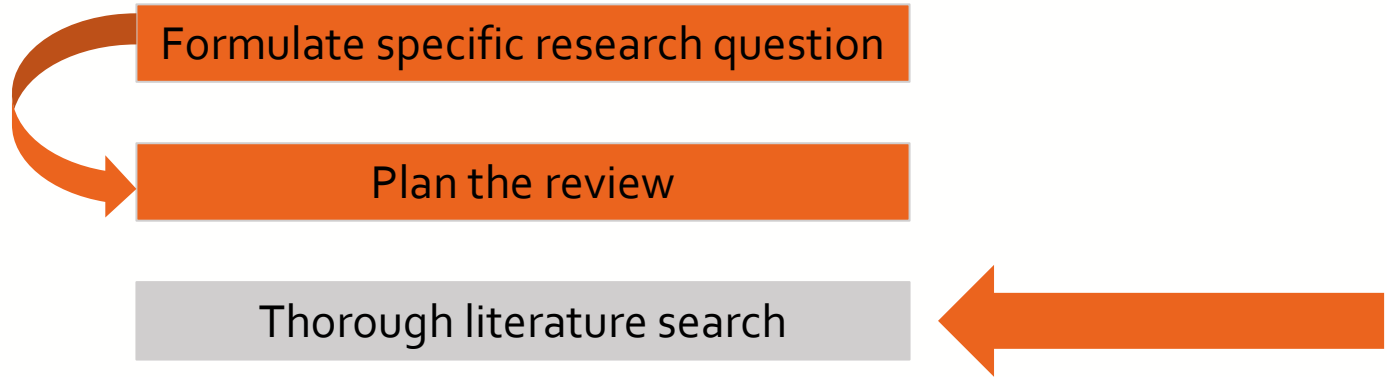
- Included in a peer-reviewed journal
- Study written in English
- New foreign vocabulary taught
- Participants aged 4-16

Will review after first few papers

## Coding for:

- Participant characteristics e.g., age, school type (primary, secondary)
- Item characteristics
- Teaching methods
- Is orthography present/emphasised?
- Findings

# Where I'm at currently



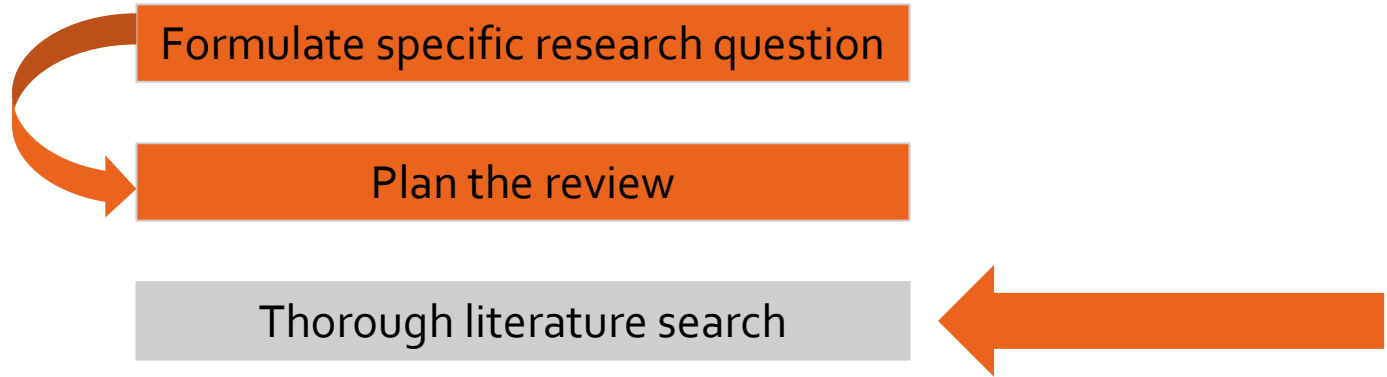
## Search terms:

- Vocabulary AND teaching AND "foreign language" AND children
- "vocabulary teaching" AND "foreign language" AND children

## Databases:

- Web of Science
- PsycInfo
- ProQuest
- Science Direct
- Scopus
- Education Resource Information Centre (ERIC)

# Where I'm at currently



Database	Search term/s	Filters	Results
Web of Science	vocabulary AND teaching AND foreign language AND children		154
Web of Science	"vocabulary teaching" AND "foreign language" AND "children"		9
PsycInfo	vocabulary AND teaching AND foreign language AND children		198
PsycInfo	"vocabulary teaching" AND "foreign language" AND "children"		8
ProQuest	title,abstract(vocabulary) AND title,abstract(teaching) AND title,abstract(foreign language) AND title,abstract(children)		52
ProQuest	"vocabulary teaching" AND "foreign language" AND "children"	Peer-reviewed, scholarly journals	464
ERIC	vocabulary AND teaching AND foreign language AND children		124
ERIC	"vocabulary teaching" AND "foreign language" AND "children"		2
Science Direct	vocabulary AND teaching AND foreign language AND children		3,167
Science Direct	"vocabulary teaching" AND "foreign language" AND "children"		81
Scopus	vocabulary AND teaching AND foreign language AND children		74
Scopus	"vocabulary teaching" AND "foreign language" AND "children"		3
			<b>4,336</b>

4,336 titles and abstracts to review



# Next steps



- Import into EndNote
- Deduplicate
- Scan through titles and abstracts
- Read full papers of remaining results



# Discussion



What do you do to teach new words?



## Would this be feasible in a school?

### Session 1

Whole class

Pre-test

BPVS

Spanish vocab  
knowledge

1 hour

### Session 2

Whole class

Word learning  
task

30 mins

### Session 3

Whole class

Word learning  
task

20 mins

Individual

Picture naming task

Cued picture naming  
task

10 mins per pupil

### Session 4

Individual

WASI Matrices

TOWRE

Picture naming task

Cued picture naming  
task

Spelling task

20-30 mins per pupil

Background measures

Pre-test

Experimental task

Post-test



Would it work better if the teacher were to do the teaching sessions?



## Would your school be interested in taking part?

- Years 3-5
- Must currently be teaching a language other than Spanish
- Looking to recruit a multiple form entry school or several single form entry schools

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## Questions/comments?



# Thank you!

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 @courtneyhooton\_