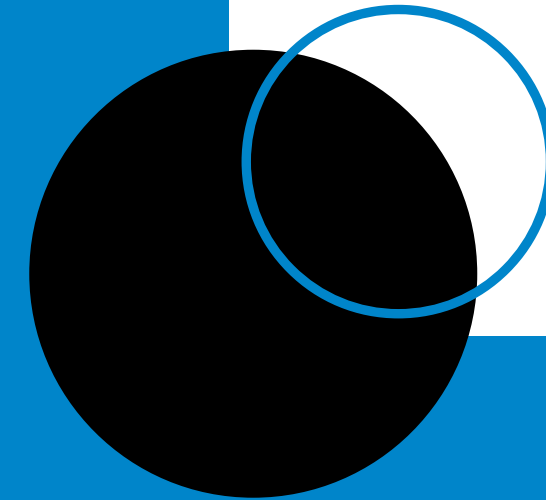


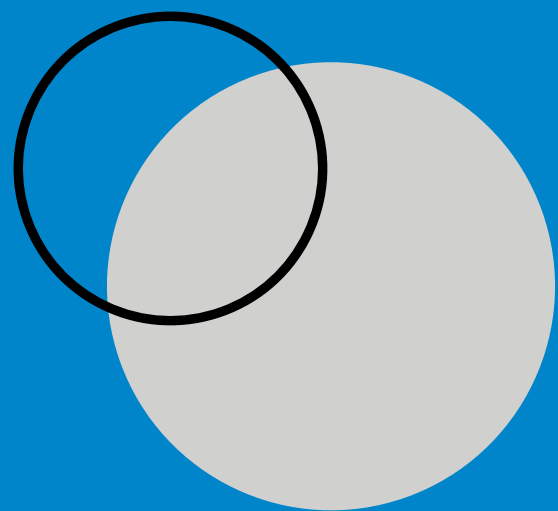
Utah State University SRS 2022

# Computational Thinking & Professional Learning for Paraprofessionals

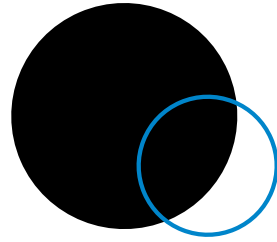
Presented by Aubrey Rogowski  
Instructional Technology & Learning Sciences



# STEM+C

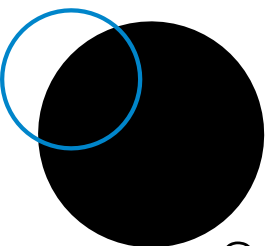


Science  
Technology  
Engineering  
Math  
Computing



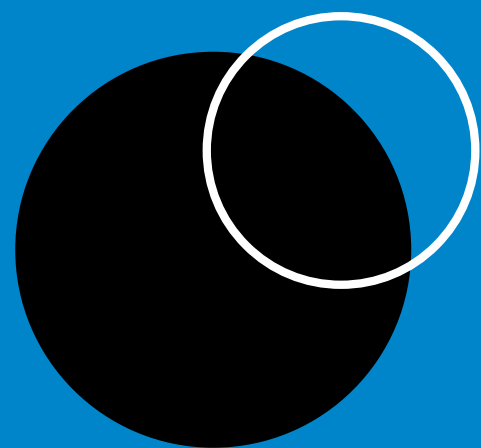
**Only 22% of elementary schools in Utah currently offer instruction in computer science.**

(Rich et al., 2019)



# computational thinking

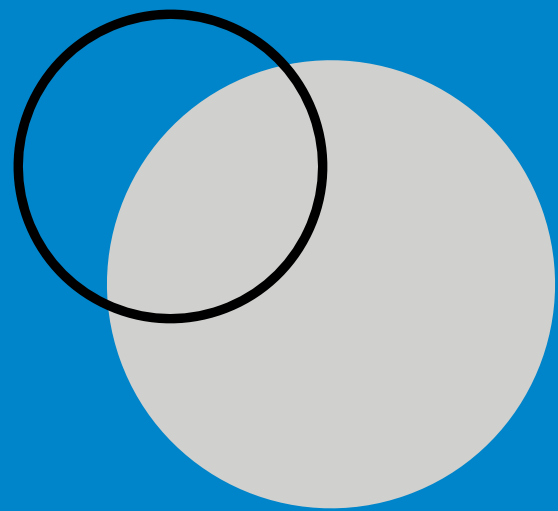
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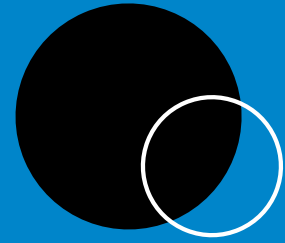
implemented in elementary school  
through STEM specialty classes

K-5 CS standards- computational thinking  
taught by paraprofessionals

# What is a paraprofessional?



hourly  
un-licensed  
often provided little to no training



# systematic literature review

computational thinking

professional learning

paraprofessionals

# Guiding Questions

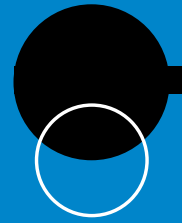
What is computational thinking?

What does the current research say about professional learning for paraprofessionals?

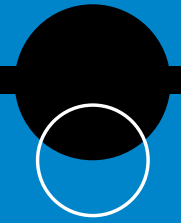
What is known about computational thinking professional development for educators?

What are K-6 educators' attitudes, beliefs, knowledge, and values about computational thinking?

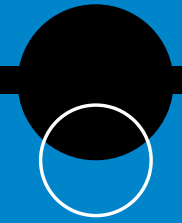
# systematic search process



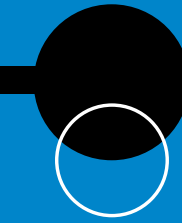
Search  
relevant  
databases



Read title &  
abstract to  
identify  
keywords,  
inclusion,  
exclusion  
criteria

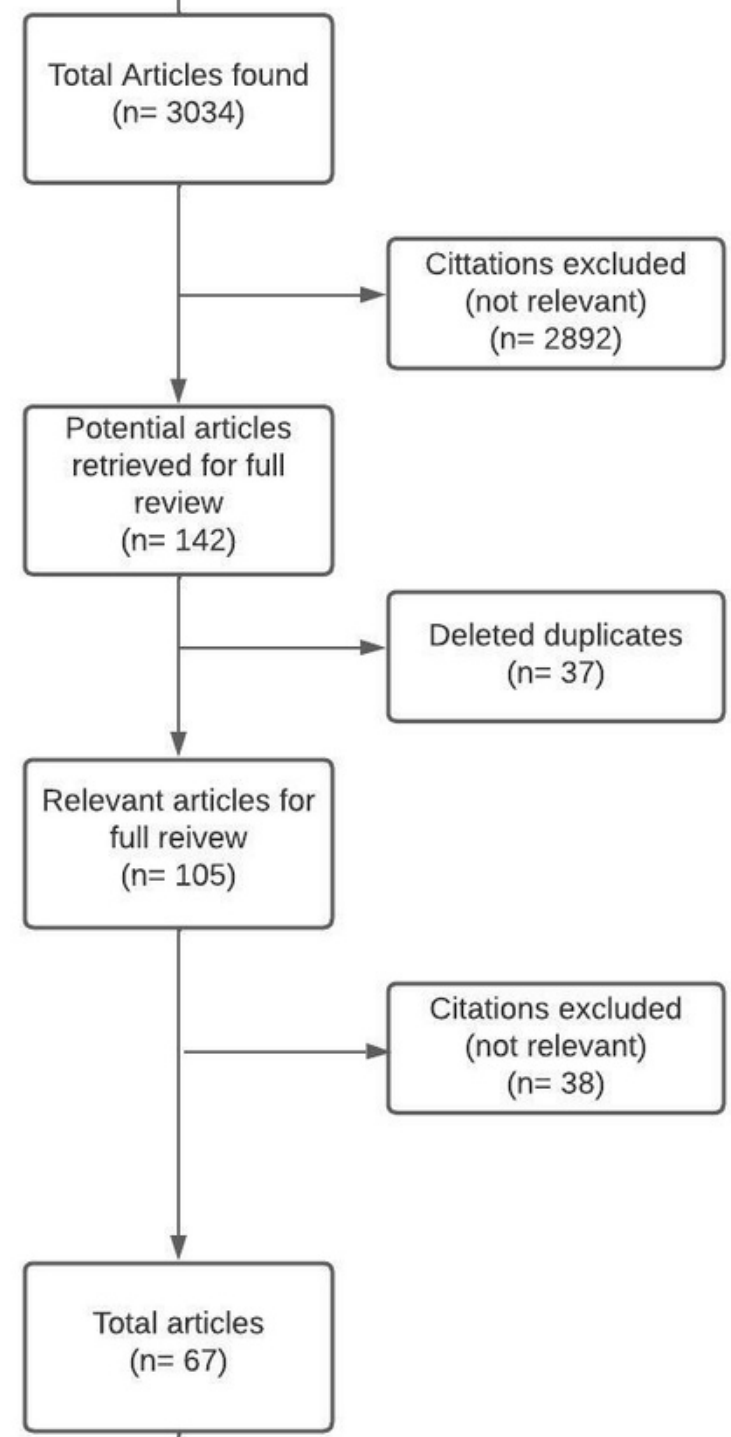
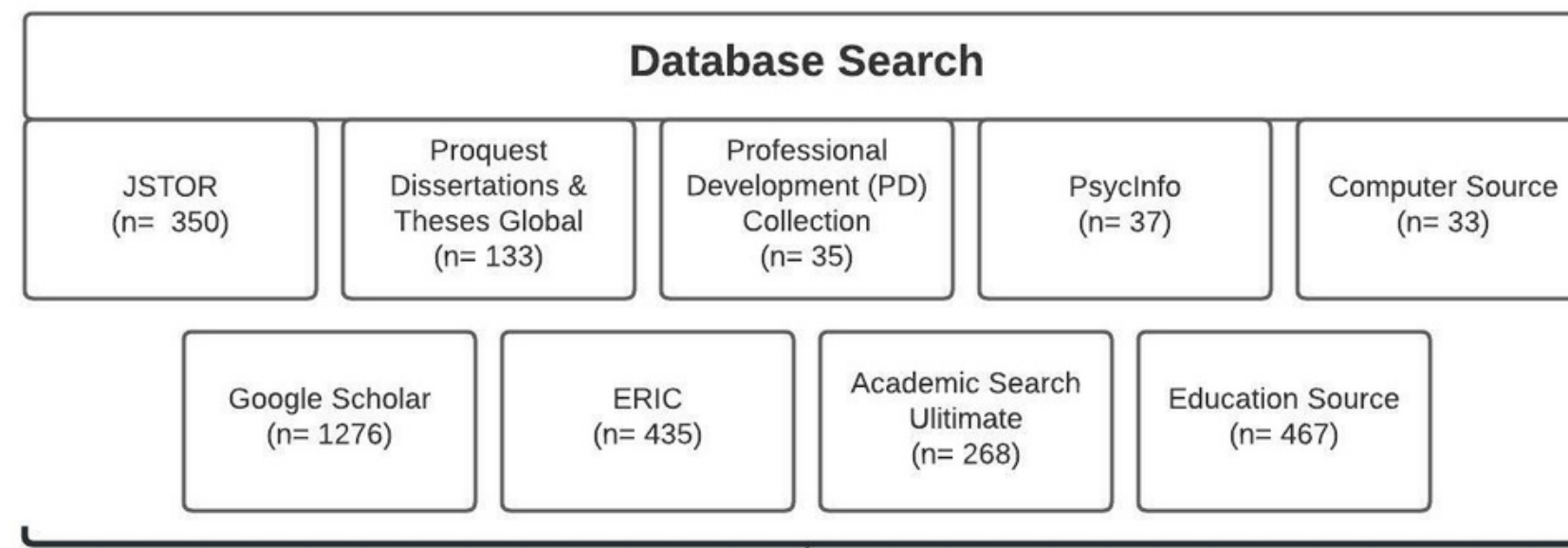


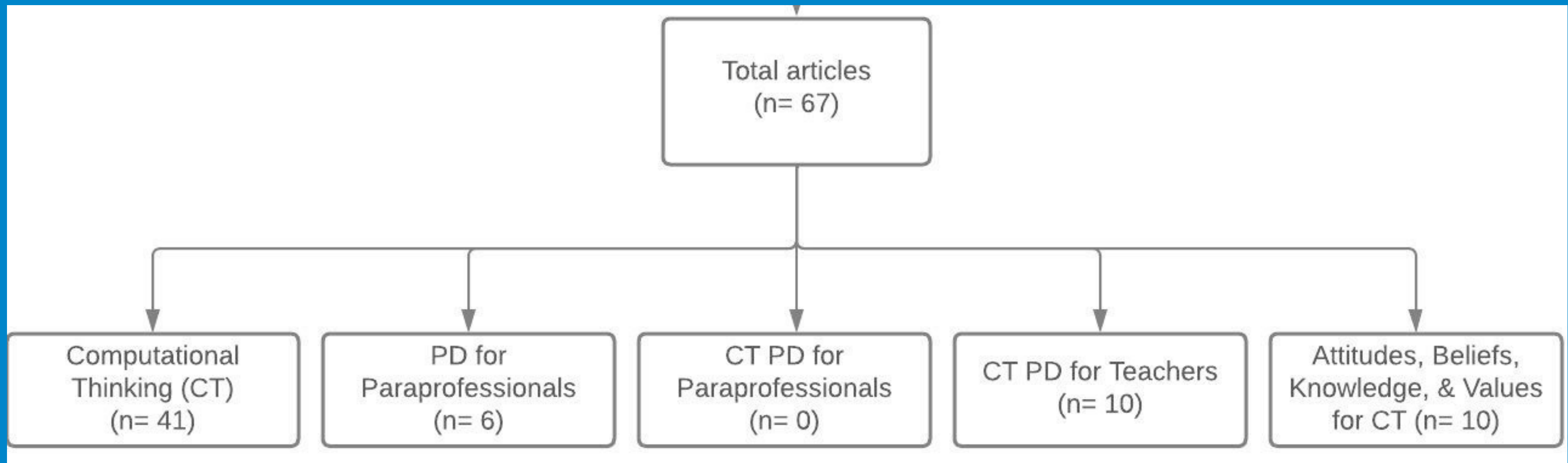
Select relevant  
articles &  
delete  
duplicates



Full article  
review








# Findings



 computational thinking

 professional development  
for educators

 paraprofessionals

 recommendations

# Computational Thinking

No Consensus  
on a Definition

Cognitive  
Ability

Analytical  
Thinking

Problem-  
Solving  
Approach

# Professional Learning for Paraprofessionals

1.3 million para-  
professionals  
across the  
nation

Receive little  
or no  
additional  
training  
(Laging, 2014)

Lack  
confidence in  
their abilities  
(Buynak, 2014)

Lack of  
training leads  
to an inability  
to be effective  
(Kirkwood,  
2021)

# Computational Thinking Professional Development for Educators

Teach  
computational  
thinking  
through  
integration

Communities  
of Practice as  
a professional  
development  
model

Computational  
thinking is  
difficult to  
teach and for  
teachers to  
develop

Need for  
continuous or  
extended  
professional  
development  
and coaching

# Attitudes, Beliefs, Knowledge, and Values around Computational Thinking

An analog v.  
digital approach  
to learning and  
developing  
computational  
thinking

Concerned with  
using  
developmentally  
appropriate  
teaching  
practices

Teachers' self-  
efficacy in  
computational  
thinking lags  
behind  
teachers'  
coding self-  
efficacy

Teachers'  
understanding  
of what  
computational  
thinking is  
varies

# Recommendations



1

Analog first approach

2

Implement Communities of Practice

3

Continuous support and scaffolding



# Acknowledgments

- My advisor, Dr. Mimi Recker, for her guidance, feedback, and support of my doctoral work
- ITLS Research & Development Scholarship



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Questions?

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