A Review of Serious Games for Programming

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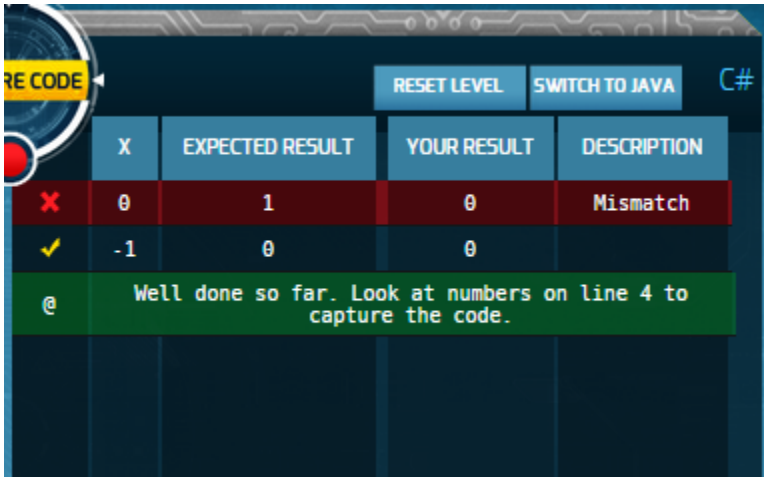
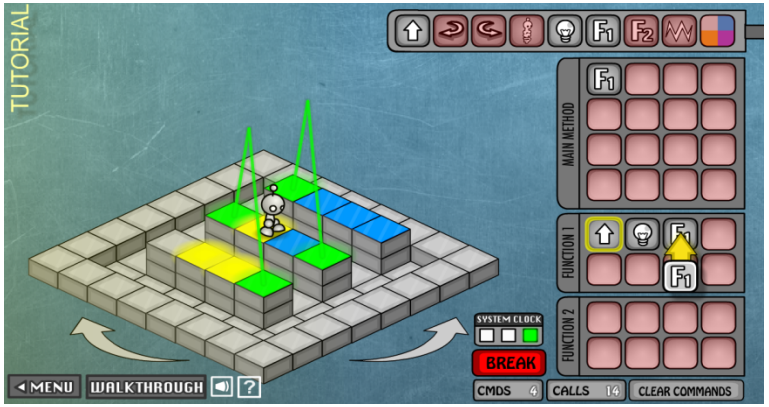
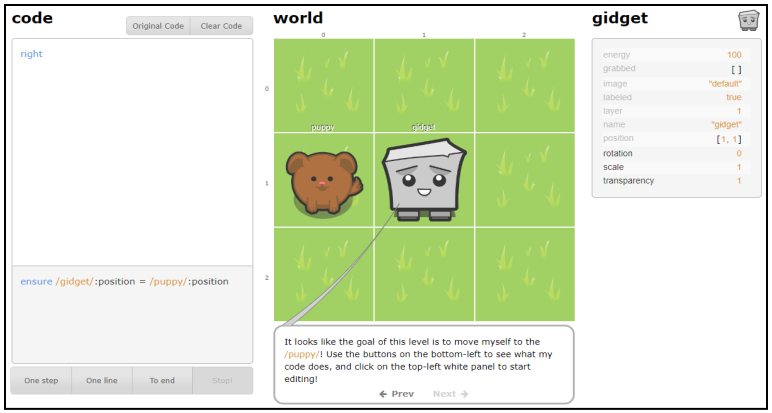
Serious Programming Games



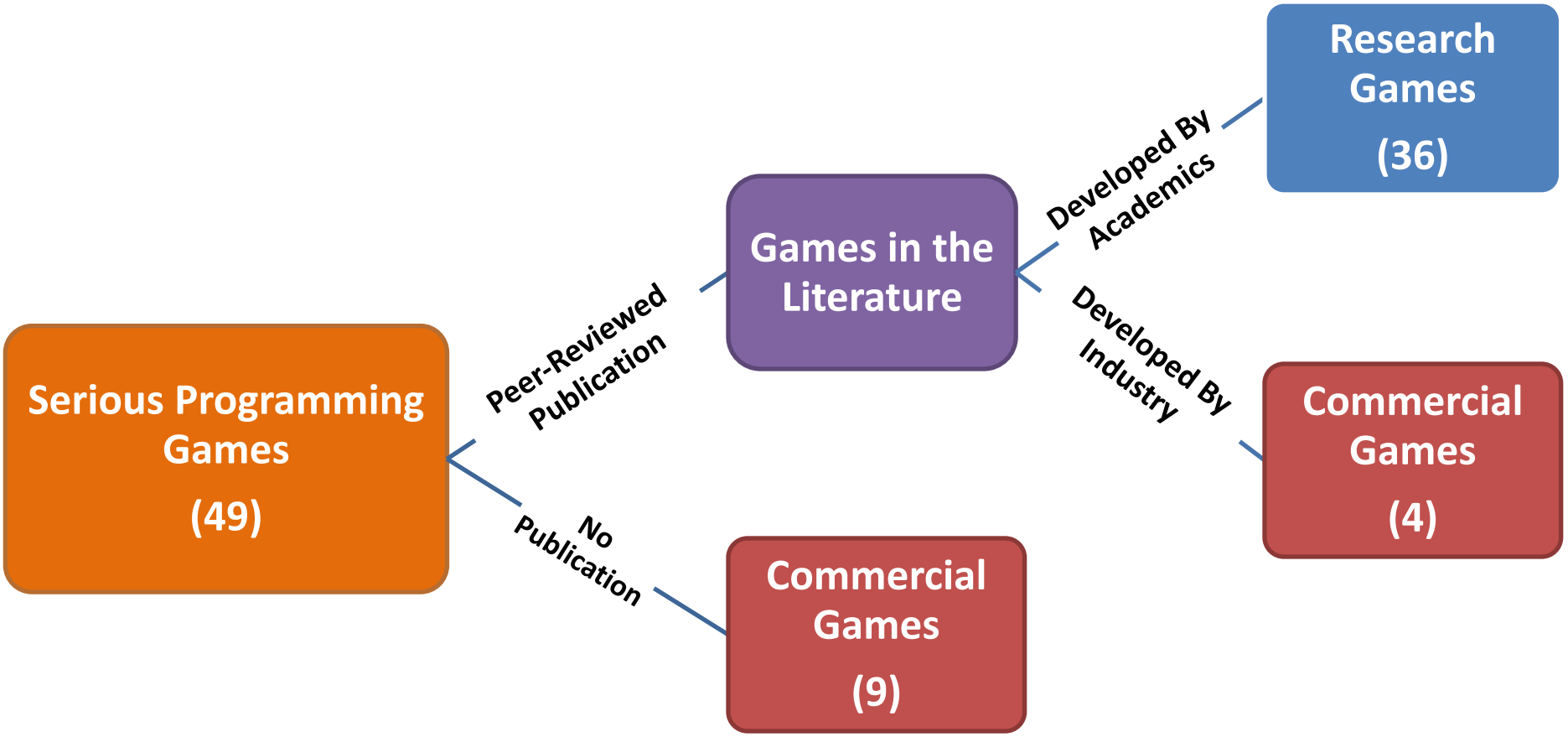




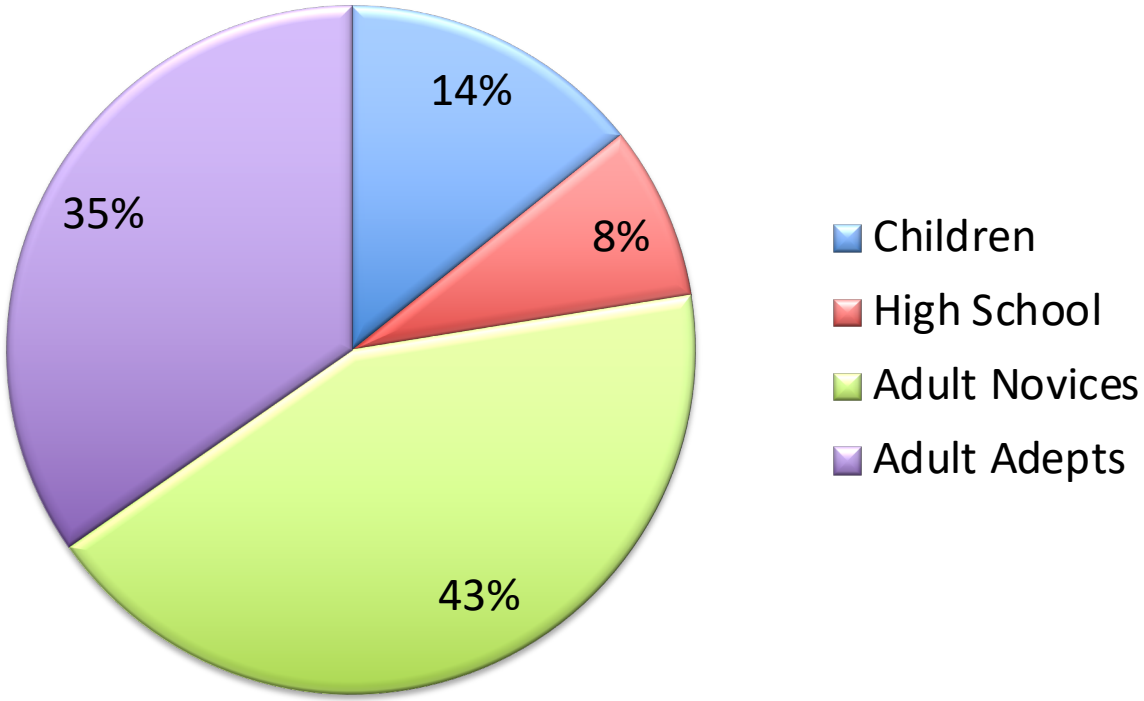
Questions

- What is the **state** of the serious programming game literature?
- What **concepts** are covered in serious programming games?
- What questions are **evaluated** for serious programming games?
  - How are these questions evaluated?

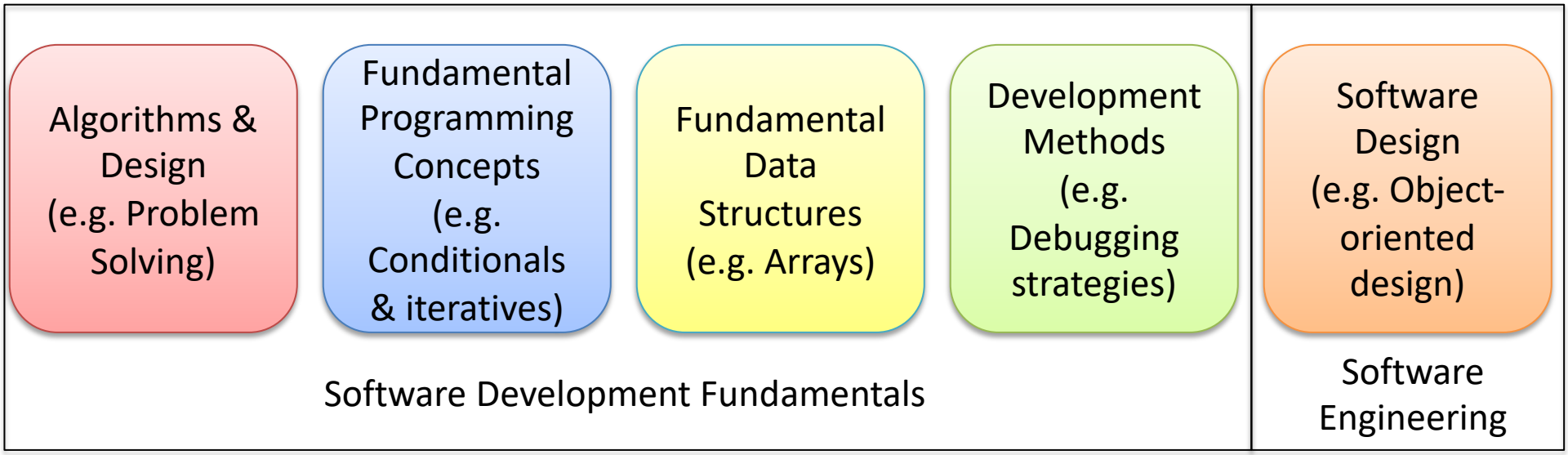
Identification



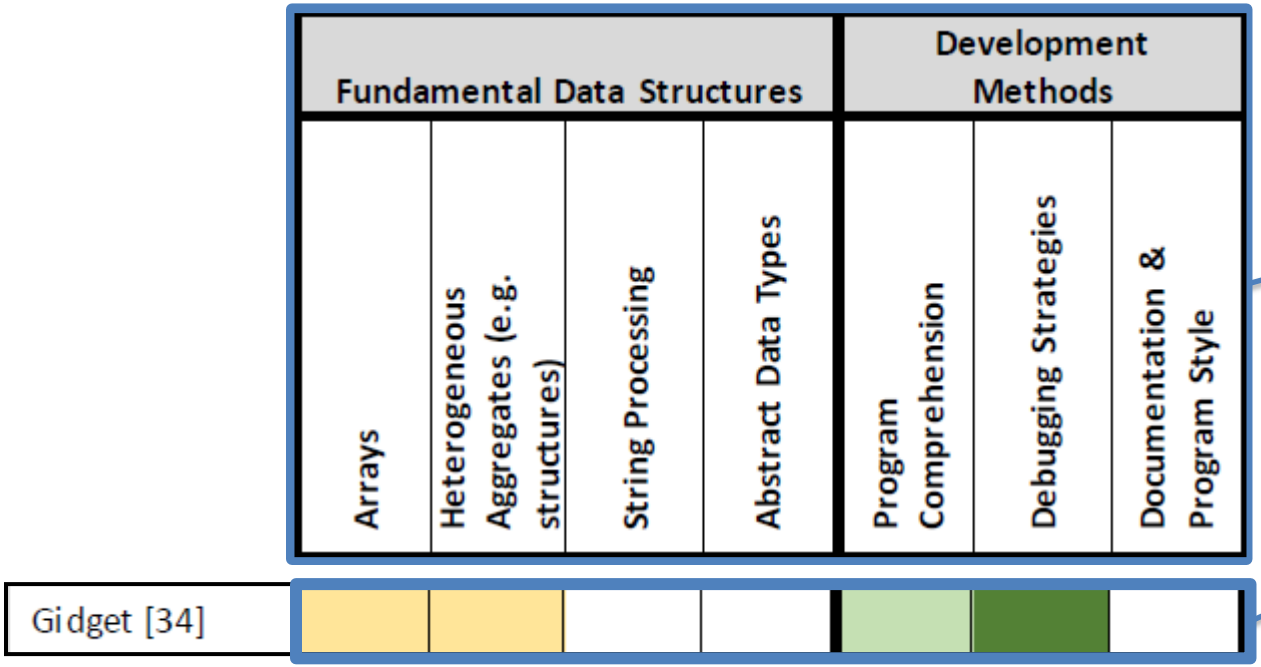
Audience

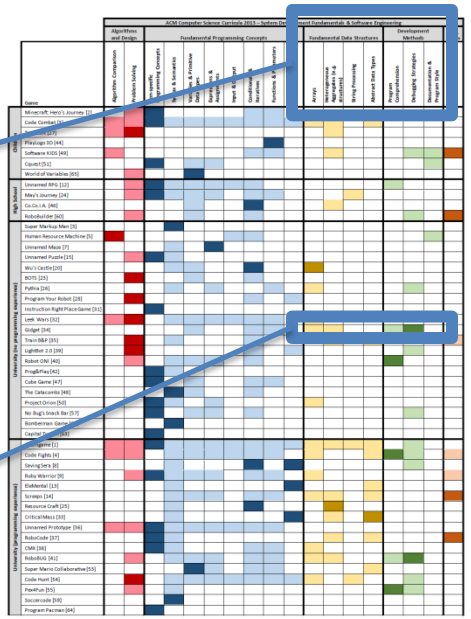


Serious Programming Game Content



Results (Content)





Results (Evaluation)

	Research Questions			
	Did the users have positive feelings about the game?	Was the game accessible?	Were users engaged while playing the game?	Was there a learning effect from playing the game?
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Was the game accessible?				
Were users engaged while playing the game?				
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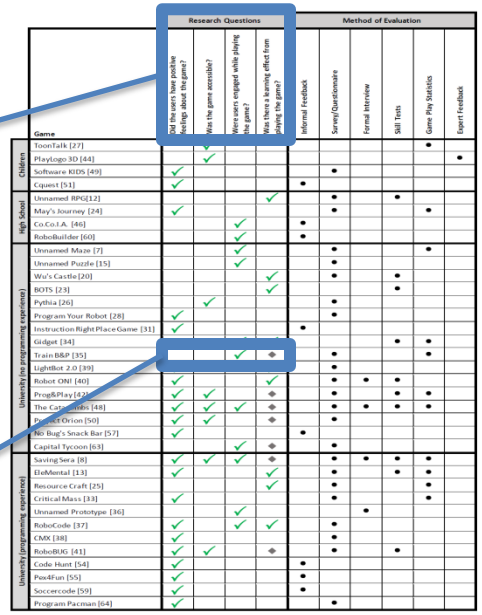
Train B&P [35]			✓	◆



Results (Evaluation)

	Method of Evaluation					
	Informal Feedback	Survey/Questionnaire	Formal Interview	Skill Tests	Game Play Statistics	Expert Feedback
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Survey/Questionnaire						
Formal Interview						
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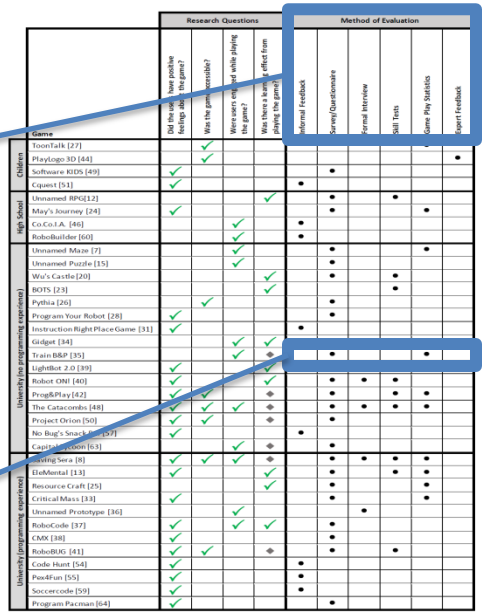
Train B&P [35]		•			•	



Challenges

- It is difficult to conduct cross-game **comparisons**
- Few games received a comprehensive evaluation
- Testing **practices** for **commercially** developed games are not known

Evaluation of Serious Programming Games

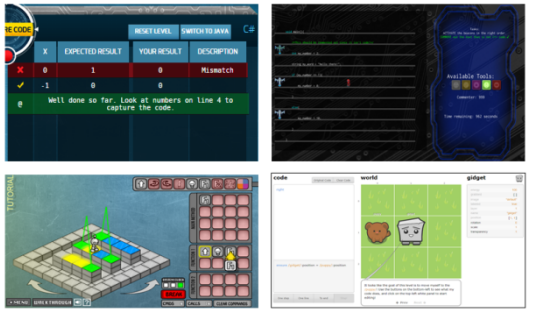
- **Learning efficacy** of serious programming games is not well understood
  - Lack of standardized evaluation methodology
  - Few studies include empirical data for reproducibility
- Issue of **availability** limits the opportunity for further evaluation
  - Only **half** of the games in the survey can actually be played or downloaded online!

Conclusion

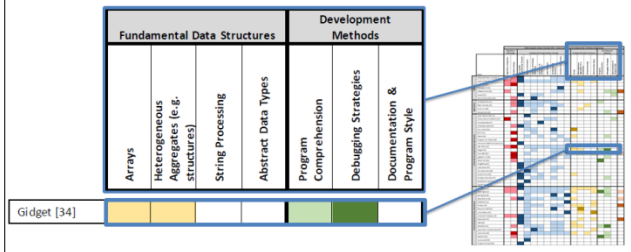
- It is unclear which **curricula gaps** can be bridged by serious programming games
- Best practices for **accessible and inclusive design** of serious programming games should be adopted
- No clear **best practices for evaluation** have been established
- There is a need for **third-party evaluations** of serious programming games

Review

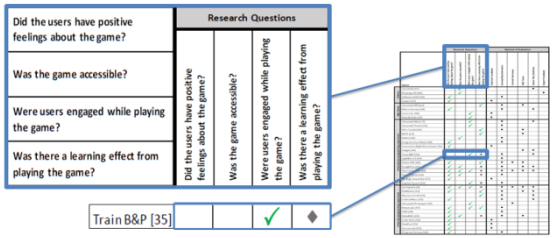
Serious Programming Games



Results (Content)



Results (Evaluation)



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