



Hiphopathy: A Computational Thinking Process to Encourage Empathy

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JUSTIFICATION FOR STUDY



Savvy workforce requires new and different "21st century skills"

- Ability to solve complex problems
- Ability to think critically about tasks
- Ability to effectively communicate with people from a variety of different cultures**
- Ability to work collaboratively [1]
- Ability to think computationally**

	Computer Science	Literary Analysis
Data collection	●	●
Data analysis	●	●
Data representation	●	●
Problem decomposition	●	●
Abstraction	●	●
Algorithms & procedures	●	●

FUTURE DIRECTION

This Summer we plan to launch our web application and begin gathering crowd data from a diverse array of users. We also plan to begin collecting data via our more established method in order to verify the association between CT and conceptual metaphors in hip hop. Through both of these methods we hope to verify that guiding individuals in our study through CT processes enhances their ability to reason about metaphor despite cultural boundaries.

OBJECTIVES

- Investigate and teach computational thinking (CT) through the analysis of a diverse set of individuals' metaphor cognition.
- Develop a heuristic to assess how close one can get to adopting another's way of reasoning.

METHODS

- The project focuses on the lyrics of one emcee, JayZ, from his American Gangster album.
- The songs on the album are chopped up into snippets of no more than two or three sentence chunks.
- Users are asked to supply the concepts that are evoked in their minds as they understand each sentence within a snippet
- All groups are given an initial lesson on how to use the web app

To determine how we reason about metaphors in hip hop and how that can be scaffolded to teach computational thinking we propose to conduct a study on three separate groups.

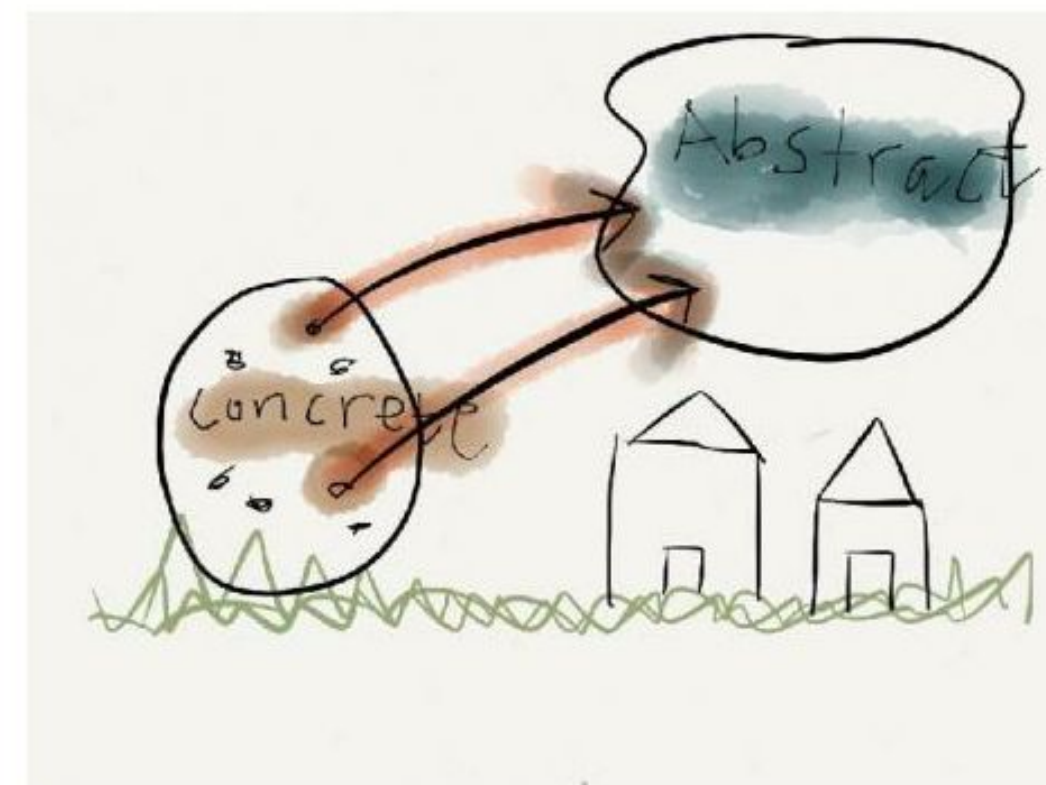
Group 1: No treatment group. This group will be asked to come register the concepts that are evoked in their mind as they understand the snippet.

Group 2: Starts with no treatment, and then are given a CT tutorial to help them decode the snippets more efficiently.

Group 3: This group is given the tutorial from the on set, and asked to decode the snippets.

CONCEPTUAL METAPHORS IN HIPHOP LYRICS

"A little Jigga, don't make you ignorant"
Author unknown



Cross-domain CT concepts

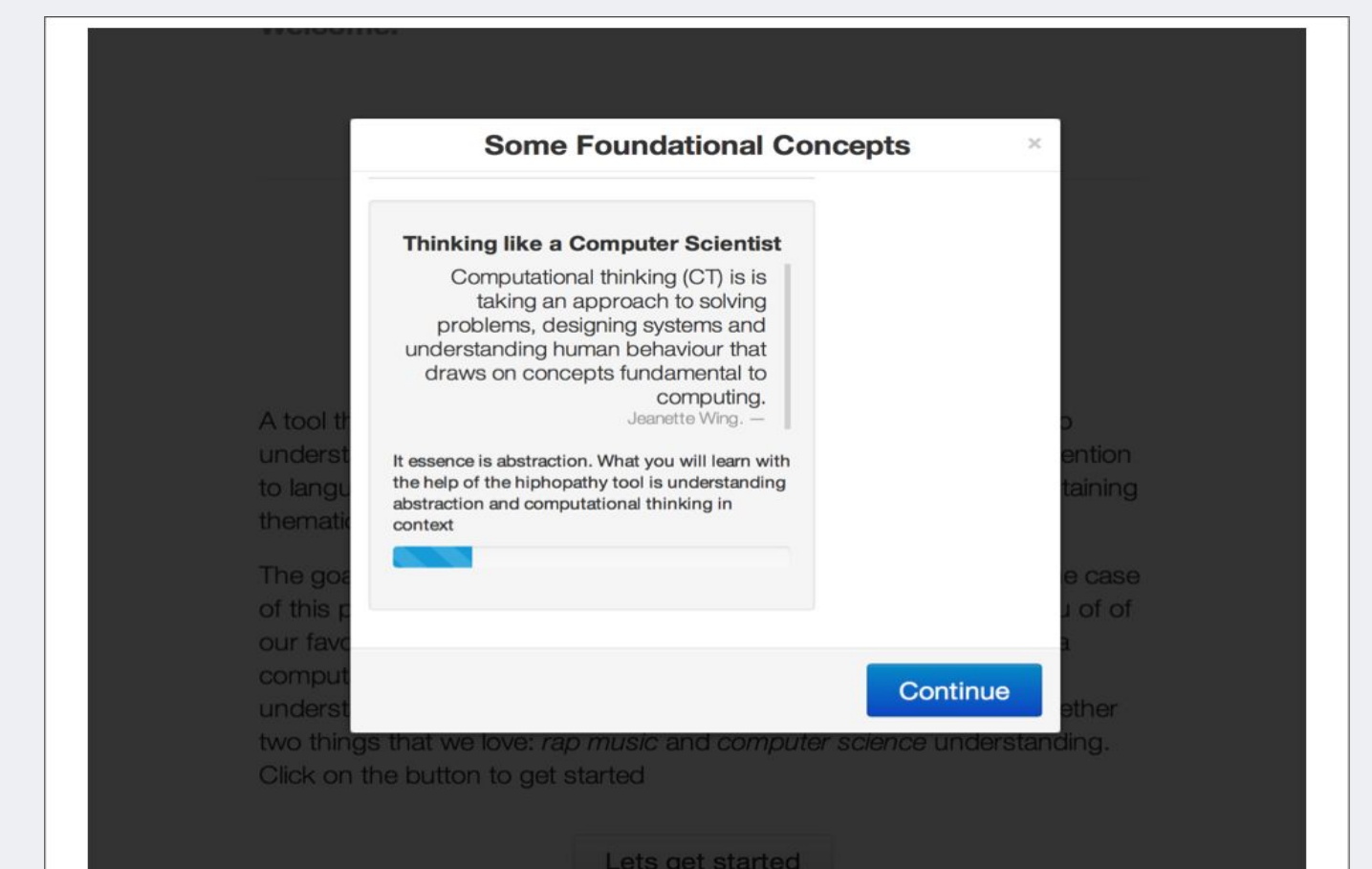
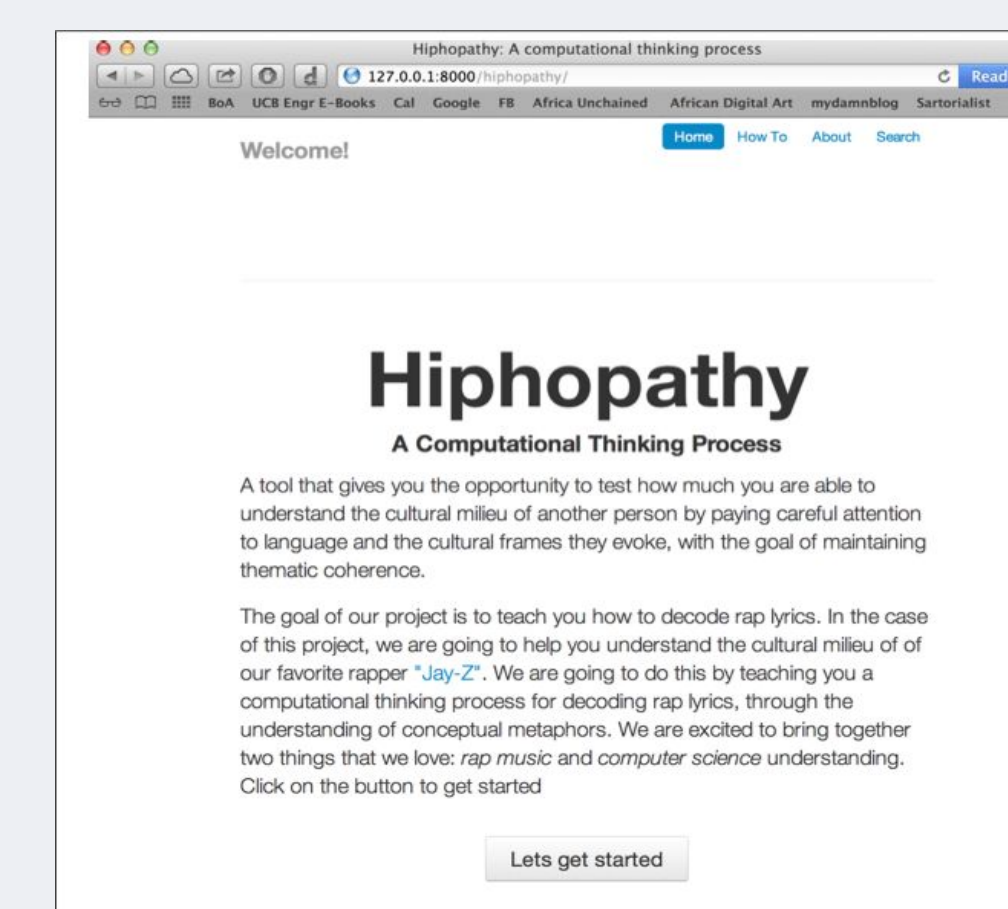
In the Hiphopathy project, we focus on literary analysis in rap lyrics to scaffold the learning of computational thinking in context. We especially focus on helping users reason about the conceptual metaphors that are in rap lyrics as a way for them to discover the cultural frames which the emcee used. We believe through this process, we can help users understand the world view of the emcee.

Computational thinking is a fundamental skill for everyone, not just for computer scientists. To reading, writing and arithmetic, we should add computational thinking to every child's analytical ability.
Jeannette M. Wing

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REFERENCES

- [1] R. N. R. C. Judith Anderson Koenig. Assessing 21st Century Skills: Summary of a Workshop. The National Academies Press, 2011.
- [2] G. Lakoff and M. Johnson. *Metaphors We Live By*. The University of Chicago Press, Chicago, IL, 1980
- [3] J. M. Wing. Computational thinking. *Communications of the ACM*, 49(3):33–35, Oct. 2006.



Songs by Jay-Z

What now?	Ignorant Shit
Click on one of the songs to reach a page with snippets of lyrics. Your job is to go through each snippet and write down what you think the metaphors are. Remember to follow the algorithm we developed. Don't be shy!	Success
	Pray
	Say Hello
	Blue Magic
	No Hook
	American Gangster
	Real Boyz (And the Winner Is...)
	American Dreamin'
	Hello Brooklyn 2.0
	I Know
	Sweet
	Fallin'
	Party Life

