## Promoting Meaningful Learning in Computer Science Courses by Leveraging Concreteness Fading Edith Law, Sangho Suh

## References

McCloud, S., & Manning, A. D. (1998). Understanding comics: The invisible art. IEEE Transactions on Professional Communications, 41(1), 66-69.

Bruner, J. S. (1966). Toward a theory of instruction (Vol. 59). Harvard University Press. Fyfe, E. R., & Nathan, M. J. (2019). Making "concreteness fading" more concrete as a theory of instruction for promoting transfer. Educational Review, 71(4), 403-422.

Agrawal, J., & Morin, L. L. (2016). Evidence-based practices: Applications of concrete representational abstract framework across math concepts for students with mathematics disabilities. Learning Disabilities Research & Practice, 31(1), 34-44.

Suh, S., Lee, M., & Law, E. (2020, June). How do we design for concreteness fading? survey, general framework, and design dimensions. In Proceedings of the Interaction Design and Children Conference (pp. 581-588).

Ainsworth, S. (2006). DeFT: A conceptual framework for considering learning with multiple representations. Learning and instruction, 16(3), 183-198.

Bouck, E. C., Park, J., Sprick, J., Shurr, J., Bassette, L., & Whorley, A. (2017). Using the virtual-abstract instructional sequence to teach addition of fractions. Research in developmental disabilities, 70, 163-174.

Suh, S., Lee, M., & Xia, G. (2020, August). Coding strip: A pedagogical tool for teaching and learning programming concepts through comics. In 2020 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) (pp. 1-10). IEEE.

A. Trory, K. Howland, and J. Good, "Designing for concreteness fading in primary computing," in Proceedings of the 17th ACM Conference on Interaction Design and Children. ACM, 2018, pp. 278–288.

N. Cohn, The Visual Language of Comics: Introduction to the Structure and Cognition of Sequential Images. A&C Black, 2013

C. M. Tribull, "Sequential science: A guide to communication through comics," Annals of the Entomological Society of America, vol. 110, no. 5, pp. 457–466, 2017

G. Yang, "Why comics belong in the classroom," 2016. [Online].

Available:https://www.youtube.com/watch?v=Oz4JqAJbxj0&feature=youtu.be

S. Suh, "Coding strip," last accessed 12 February 2020. [Online]. Available: https://codingstrip.github.io/