

## ADDITIONAL READINGS ON CT EDUCATION FOR K–12

---

---

Angeli, Charoula, Joke Voogt, Andrew Fluck, Mary Webb, Margaret Cox, Joyce Malyn-Smith, and Jason Zagami. 2016. "A K-6 Computational Thinking Curriculum Framework: Implications for Teacher Knowledge." *Educational Technology & Society* 19 (3): 47–57.

Berland, Matthew, and Uri Wilensky. 2015. "Comparing Virtual and Physical Robotics Environments for Supporting Complex Systems and Computational Thinking." *Journal of Science Education and Technology* 24 (5): 628–647.

Buitrago Flórez, Francisco, Rubby Casallas, Marcela Hernández, Alejandro Reyes, Silvia Restrepo, and Giovanna Danies. 2017. "Changing a Generation's Way of Thinking: Teaching Computational Thinking through Programming." *Review of Educational Research* 87 (4): 834–860.

Chen, Guanhua, Ji Shen, Lauren Barth-Cohen, Shiyang Jiang, Xiaoting Huang, and Moataz Eltoukhy. 2017. "Assessing Elementary Students' Computational Thinking in Everyday Reasoning and Robotics Programming." *Computers & Education* 109: 162–175.

Curzon, Paul, Tim Bell, Jane Waite, and Mark Dorling. 2019. "Computational Thinking." In *The Cambridge Handbook of Computing Education Research*, edited by Sally A. Fincher and Anthony V. Robins, 513–546. Cambridge: Cambridge University Press.

Denning, Peter. 2017. "Remaining Trouble Spots with Computational Thinking." *Communications of the ACM* 80 (6): 33–39.

Durak, Hatice Yildiz, and Mustafa Saritepeci. 2018. "Analysis of the Relation between Computational Thinking Skills and Various Variables with the Structural Equation Model." *Computers and Education* 116: 191–202.

Erstad, Ola, Birgit Eickelmann, and Koos Eichhorn. 2015. "Preparing Teachers for Schooling in the Digital Age: A Meta-Perspective on Existing Strategies and Future Challenges." *Education and Information Technologies* 20 (4): 641–654.

Gadanidis, George. 2017. "Five Affordances of Computational Thinking to Support Elementary Mathematics Education." *Journal of Computers in Mathematics and Science Teaching* 36 (2): 143–151.

Grover, Shuchi, and Roy Pea. 2013. "Computational Thinking in K–12: A Review of the State of the Field." *Educational Researcher* 42 (1): 38–43.

Guzdial, Mark. 2019. "Computing for Other Disciplines." In *The Cambridge Handbook of Computing Education Research*, edited by Sally A. Fincher and Anthony V. Robins, 584–605. Cambridge: Cambridge University Press.

Israel, Maya, Jamie N. Pearson, Tanya Tapia, Quentin M. Wherfel, and George Reese. 2015. "Supporting All Learners in School-Wide Computational Thinking: A Cross-Case Qualitative Analysis." *Computers and Education* 82: 263–279.

Kafai, Yasmin B., and Quinn Burke. 2014. *Connected Code: Why Children Need to Learn Programming*. Cambridge, MA: MIT Press.

Kafura, Dennis, Austin Cory Bart, and Bushra Chowdhury. 2018. "A Computational Thinking Course Accessible to Non-STEM Majors." *Journal of Computing Sciences in Colleges* 34 (2): 157–163.

Lévy, Pierre. 1994. *L'intelligence Collective. Pour une Anthropologie du Cyberspace [Collective Intelligence: Mankind's Emerging World in Cyberspace]*. Paris: La Découverte.

Lye, Sze Yee, and Joyce Hwee Ling Koh. 2014. "Review on Teaching and Learning of Computational Thinking through Programming: What Is Next for K–12?" *Computers in Human Behavior* 41: 51–61.

Marope, Mmantseta. 2017. "Future Competences for Future Generations." *UNESCO International Bureau of Education: In Focus*, 2. Accessed May 11, 2020. <http://ibe-infocus.org/wp-content/uploads/2018/03/In-Focus-2017.pdf>.

Merkouris, Alexandros, Konstantinos Chorianopoulos, and Achilles Kameas. 2017. "Teaching Programming in Secondary Education through Embodied Computing Platforms: Robotics and Wearables." *ACM Transactions on Computing Education* 17 (2): 9.1–9.22.

Pérez, Arnulfo. 2018. "A Framework for Computational Thinking Dispositions in Mathematics Education." *Journal for Research in Mathematics Education* 49 (4): 424–461.

Porayska-Pomsta, Kaška. 2016. "AI as a Methodology for Supporting Educational Praxis and Teacher Metacognition." *International Journal of Artificial Intelligence in Education* 26 (2): 679–700.

Przybylla, Mareen, & Ralf Romeike. 2014. "Physical Computing and Its Scope—Towards a Constructionist Computer Science Curriculum with Physical Computing." *Informatics in Education* 13 (2): 225–240.

Román-González, Marcos, Juan-Carlos Pérez-González, and Carmen Jiménez-Fernández. 2017. "Which Cognitive Abilities Underlie Computational Thinking? Criterion Validity of the Computational Thinking Test." *Computers in Human Behavior* 72: 678–691.

Sandoval, William A., and Philip Bell. 2004. "Design-Based Research Methods for Studying Learning in Context: Introduction." *Educational Psychologist* 39 (4): 199–201.

Shute, Valerie J., Chen Sun, and Jodi Asbell-Clarke. 2017. "Demystifying Computational Thinking." *Educational Research Review* 22: 142–158.

Singer-Gabella, Marcy, Barbara Stengel, Emily Shahan, and Min-Joung Kim. 2016. "Learning to Leverage Student Thinking: What Novice Approximations Teach Us about Ambitious Practice." *Elementary School Journal* 116 (3): 411–436.

Sullivan, Florence R., and John Heffernan. 2016. "Robotic Construction Kits as Computational Manipulatives for Learning in the STEM Disciplines." *Journal of Research on Technology in Education* 48 (2): 105–128.

Sung, Woonhee, Junghyun Ahn, and John Black. 2017. "Introducing Computational Thinking to Young Learners: Practicing Computational Perspectives through Embodiment in Mathematics Education." *Technology, Knowledge and Learning* 22 (3): 443–463.

Tan, Jennifer Pei-Ling, Suzanne S. Choo, Trivina Kang, and Gregory Arief D. Liem. 2017. "Educating for Twenty-First Century Competencies and Future-Ready Learners: Research Perspectives from Singapore." *Asia Pacific Journal of Education* 37 (4): 425–436.

Tatar, Deborah. 2007. "The Design-Tension Framework." *Human-Computer Interaction* 22 (4): 413–451.

Taylor, Kellie, and Youngkyun Baek. 2019. "Grouping Matters in Computational Robotic Activities." *Computers in Human Behavior* 93: 99–105.

Tuhkala, Ari, Marie-Louise Wagner, Ole Sejer Iversen, and Tommi Kärkkäinen. 2019. "Technology Comprehension—Combining Computing, Design, and Societal Reflection as a National Subject." *International Journal of Child-Computer Interaction* 20: 54–63.

Turchi, Tommaso, Daniela Fogli, and Alessio Malizia. 2019. "Fostering Computational Thinking through Collaborative Game-Based Learning." *Multimedia Tools and Applications* 78 (10): 13649–13673.

Vahrenhold, Jan, Quintin Cutts, and Katrina Falkner. 2019. "Schools (K–12)." In *The Cambridge Handbook of Computing Education Research*, edited by Sally A. Fincher and Anthony V. Robins, 547–583. Cambridge: Cambridge University Press.

Voogt, Joke, Petra Fisser, Jon Good, Punya Mishra, and Aman Yadav. 2015. "Computational Thinking in Compulsory Education: Towards an Agenda for Research and Practice." *Education and Information Technologies* 20 (4): 715–728.

Walker, Caroline, and Alan Gleaves. 2018. "Teaching Computational Thinking." In *Creating the Coding Generation in Primary Schools: A Practical Guide for Cross-Curricular Teaching*, edited by Steve Humble, 22–35. Abingdon, UK: Routledge.

Wang, Tzu-Hua, Kenneth Y. T. Lim, Jari Lavonen, and Alison Clark-Wilson. 2019. "Maker-Centred Science and Mathematics Education: Lenses, Scales and Contexts." *International Journal of Science and Mathematics Education* 17 (Supplement 1): 1–11.

Webb, Mary, Niki Davis, Tim Bell, Yaacov Katz, Nicholas Reynolds, Dianne Chambers, and Maciej Sysło. 2017. "Computer Science in K–12 School Curricula of the 21st Century: Why, What and When?" *Education and Information Technologies* 22 (2): 445–468.

Weintrop, David, Elham Beheshti, Michael Horn, Kai Orton, Kemi Jona, Laura Trouille, and Uri Wilensky. 2016. "Defining Computational Thinking for Mathematics and Science Classrooms." *Journal of Science Education and Technology* 25 (1): 127–147.

Whitherspoon, Eben, Ross Higashi, Christian Schunn, Emily Baehr, and Robin Shoop. 2018. "Developing Computational Thinking through a Virtual Robotics Programming Curriculum." *ACM Transactions on Computing Education* 18 (1): 4.1–4.20.