













## REFERENCES

- [1] Roger Azevedo and Jennifer G Cromley. 2004. Does training on self-regulated learning facilitate students' learning with hypermedia? *Journal of Educational Psychology* 96, 3 (2004), 523.
- [2] Roy F. Baumeister and Kathleen D. Vohs. 2003. Self-regulation and the executive function of the self. *Handbook of self and identity* 1 (2003), 197–217.
- [3] Suresh K. Bhavnani, Frederick A. Peck, and Frederick Reif. 2008. Strategy-Based Instruction: Lessons Learned in Teaching the Effective and Efficient Use of Computer Applications. *ACM Transactions on Computer-Human Interaction* 15, 1, Article 2 (May 2008), 43 pages. <https://doi.org/10.1145/1352782.1352784>
- [4] Alan F. Blackwell. 2002. First steps in programming: A rationale for attention investment models. In *IEEE Symposium on Visual Languages and Human-Centric Computing*. 2.
- [5] Ryan Chmiel and Michael C. Loui. 2004. Debugging: From Novice to Expert. In *ACM SIGCSE Technical Symposium on Computer Science Education*. 17–21. <https://doi.org/10.1145/971300.971310>
- [6] K Anders Ericsson, Ralf T Krampe, and Clemens Tesch-Römer. 1993. The role of deliberate practice in the acquisition of expert performance. *Psychological review* 100, 3 (1993), 363.
- [7] Katrina Falkner, Rebecca Vivian, and Nickolas JG Falkner. 2014. Identifying computer science self-regulated learning strategies. In *Proceedings of the 2014 conference on Innovation & technology in computer science education*. ACM, New York, NY, 291–296.
- [8] Matthias Felleisen, Robert Bruce Findler, Matthew Flatt, and Shriram Krishnamurthi. 2018. *How to design programs: an introduction to programming and computing*. MIT Press, Cambridge, MA.
- [9] David Hammer and Leema K Berland. 2014. Confusing claims for data: A critique of common practices for presenting qualitative research on learning. *Journal of the Learning Sciences* 23, 1 (2014), 37–46.
- [10] Matthias Hauswirth and Andrea Adamoli. 2017. Metacognitive calibration when learning to program. In *Proceedings of the 17th Koli Calling Conference on Computing Education Research*. 50–59.
- [11] Ada S Kim and Andrew J Ko. 2017. A pedagogical analysis of online coding tutorials. In *ACM SIGCSE Technical Symposium on Computer Science Education*. 321–326.
- [12] Andrew J Ko, Robin Abraham, Laura Beckwith, Alan Blackwell, Margaret Burnett, Martin Erwig, Chris Scaffidi, Joseph Lawrance, Henry Lieberman, Brad Myers, et al. 2011. The state of the art in end-user software engineering. *Comput. Surveys* 43, 3 (2011), 21.
- [13] Andrew J Ko, Brad A Myers, and Htet Htet Aung. 2004. Six learning barriers in end-user programming systems. In *IEEE Symposium on Visual Languages and Human-Centric Computing*. 199–206.
- [14] Thomas D LaToza, Maryam Arab, Dastyni Loksa, and Andrew J. Ko. 2018. Explicit Programming Strategies. *In review* (2018).
- [15] Raymond Lister, Elizabeth S. Adams, Sue Fitzgerald, William Fone, John Hamer, Morten Lindholm, Robert McCartney, Jan Erik Moström, Kate Sanders, Otto Seppälä, Beth Simon, and Lynda Thomas. 2004. A Multi-national Study of Reading and Tracing Skills in Novice Programmers. *SIGCSE Bulletin* 36, 4 (June 2004), 119–150. <https://doi.org/10.1145/1041624.1041673>
- [16] Dastyni Loksa and Andrew J Ko. 2016. The role of self-regulation in programming problem solving process and success. In *ACM International Computing Education Research Conference*. 83–91.
- [17] Dastyni Loksa, Andrew J Ko, Will Jernigan, Alannah Oleson, Christopher J Mendez, and Margaret M Burnett. 2016. Programming, problem solving, and self-awareness: effects of explicit guidance. In *ACM SIGCHI Conference on Human Factors in Computing Systems*. 1449–1461.
- [18] Greg L Nelson, Benjamin Xie, and Andrew J Ko. 2017. Comprehension First: Evaluating a Novel Pedagogy and Tutoring System for Program Tracing in CS1. In *ACM International Computing Education Research Conference*. 2–11.
- [19] Devon H. O'Dell. 2017. The Debugging Mindset. *ACM Queue* 15, 1, Article 50 (Feb. 2017), 20 pages. <https://doi.org/10.1145/3055301.3068754>
- [20] James Prather, Raymond Pettit, Kayla McMurry, Alani Peters, John Homer, and Maxine Cohen. 2018. Metacognitive Difficulties Faced by Novice Programmers in Automated Assessment Tools. In *Proceedings of the 2018 ACM Conference on International Computing Education Research*. 41–50.
- [21] Yizhou Qian and James Lehman. 2017. Students' Misconceptions and Other Difficulties in Introductory Programming: A Literature Review. *ACM Transactions on Computing Education* 18, 1, Article 1 (Oct. 2017), 24 pages. <https://doi.org/10.1145/3077618>
- [22] Emmanuel Schanzer, Kathi Fisler, and Shriram Krishnamurthi. 2018. Assessing Bootstrap: Algebra Students on Scaffolded and Unscaffolded Word Problems. In *ACM Technical Symposium on Computer Science Education*. 8–13.
- [23] Benjamin Xie, Greg L. Nelson, and Andrew J. Ko. 2018. An Explicit Strategy to Scaffold Novice Program Tracing. In *ACM Technical Symposium on Computer Science Education*. 344–349. <https://doi.org/10.1145/3159450.3159527>