

# 21st Century Learning Evaluation and Adaptation for G/T Education

Gregory Boldt



# Outline:

Presentation on 21st century learning, online learning resources, and pedagogical design capacity (15 mins)

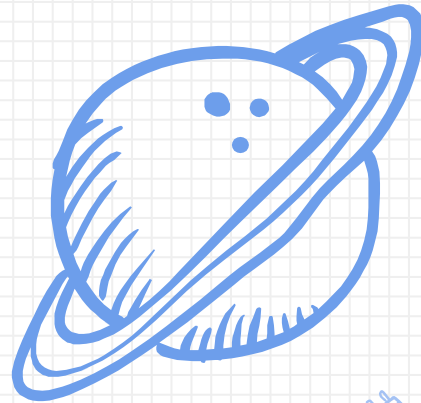
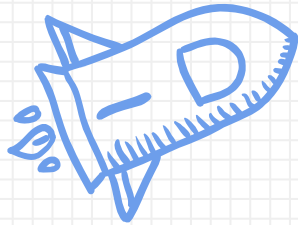
Lesson evaluation and adaptation exercise (40 mins)

Wrap-Up (5 mins)

What does 21<sup>st</sup>  
century learning  
mean to you?

# 21<sup>st</sup> Century Learning

*Gaining the competencies to participate fully in society;  
not only in the future, but also in the present*



- Creativity
- Critical thinking
- Collaboration
- Communication


- Active
- Authentic
- Interdisciplinary
- Participatory
- Uses effective assessment methods
- Develops digital literacy









A blue line drawing on a light gray grid background. It depicts two stylized human figures, one on the left and one on the right, facing each other. Above them is a large speech bubble, indicating a conversation or dialogue.

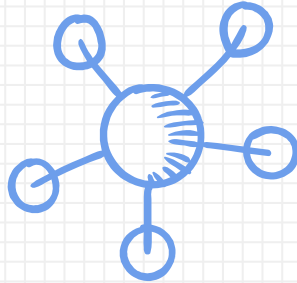




# 21st century learning is interdisciplinary

---

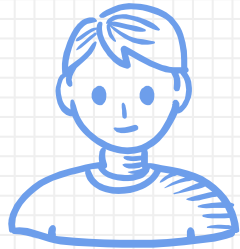
Students consider multiple disciplinary perspectives, create connections between them, and integrate knowledge into a more comprehensive understanding of the topic.



# 21st century learning is participatory

---

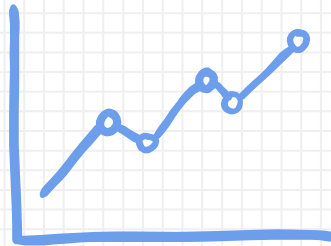
Students make choices about what they learn, produce work similar to domain experts would, and share their learning with broader communities.



# 21st century learning uses effective assessment methods

---

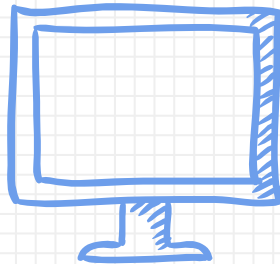
Diagnostic, formative, and summative assessments are connected and provide students with feedback that improves their work, supports meaningful comparisons, and shows them their progress.

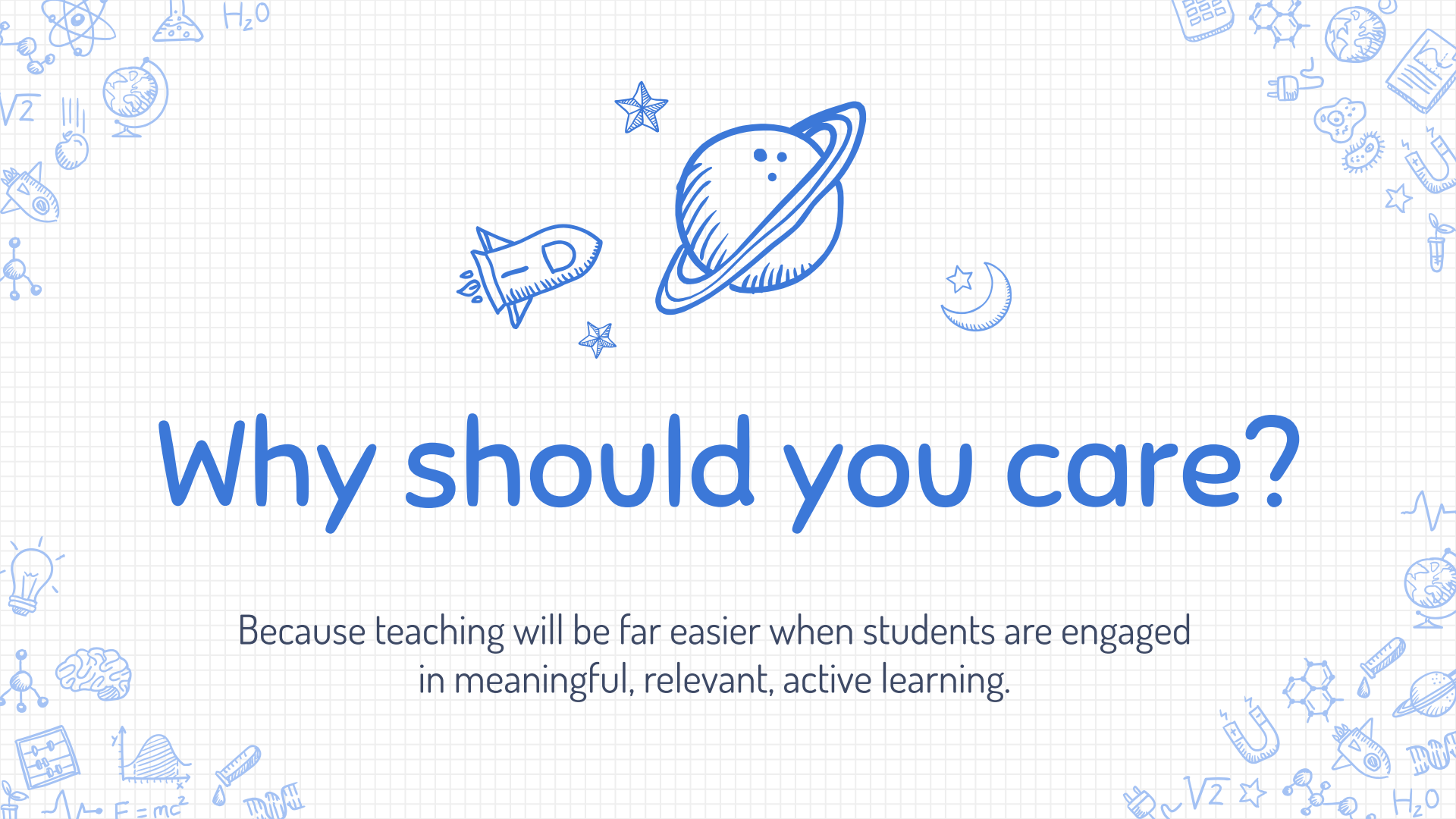


# 21st century learning develops digital literacy

---

Learning involves accessing, using, and producing digital information or digital media, and/or using digital technologies to communicate and share with others.





# Why should you care?

Because teaching will be far easier when students are engaged in meaningful, relevant, active learning.

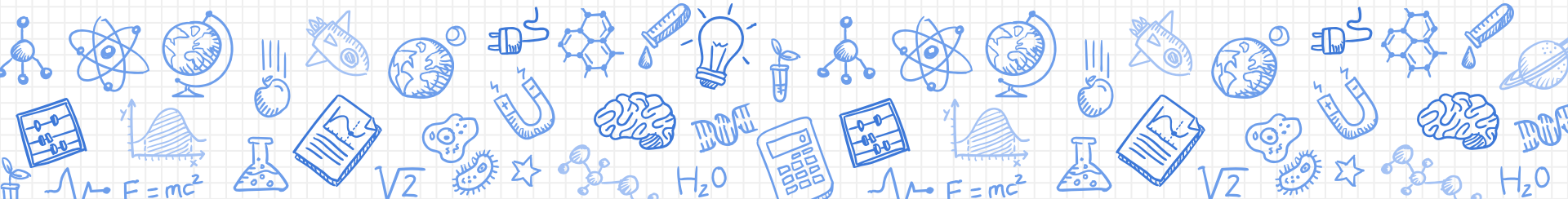


# Why is this relevant to G/T contexts?

Because G/T students' refined interests, knowledge, and skills will help them deeply engage with these more complex activities.

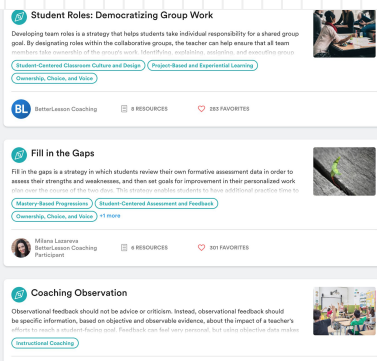
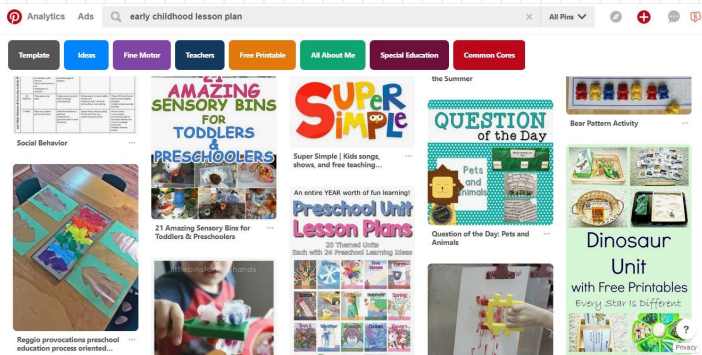
Imagine you need to develop a  
learning unit that promotes 21st  
century learning.

Where do you start?



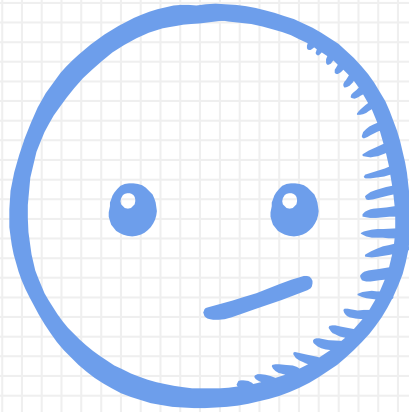
## Web-based platforms that have:

- Innovative and interactive curricular materials
- Teacher-created lesson plans
- Visualization tools



## Benefits:

- Usually free and high-quality
- Provide access to a wide variety of resources
- Fit specific contexts
- Saves time
- Accessible when needed
- Can fill gaps in your knowledge
- Allow the sharing of self-made resources

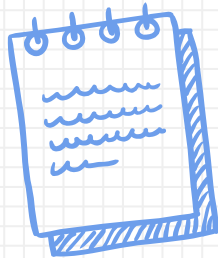


# Unfortunately...

They are usually traditional, concrete materials  
that don't support innovating ways of teaching  
and learning

# Pedagogical Design Capacity

*An educator's ability to adapt curricular materials to meet the needs and interests of students.*



# Pedagogical Design Capacity

---

There are three ways we can implement resources:

- 1) *Offloads* – implementing unchanged materials
- 2) *Improvisations* – modifying instruction and flexibly adapting materials
- 3) *Adaptations* – somewhere between offloads and improvisations



# Evaluating lessons for 21st century learning

**Step 1:** Select either:

A grade 2 math unit on linear measurement

OR

A grade 9 ELA unit on personal identities in written texts

**Step 2:** Navigate to the shared folder and choose a breakout group

**Step 3:** Evaluate how well the lesson incorporates each dimension of 21st century learning by typing why/how it aligns, somewhat aligns, or does not align with each principle



Is the learning in this activity creative?

No	Somewhat	Yes
Learning involves finding solutions to questions or problems with a single, predetermined answer.	Students have some agency in finding solutions to more complex questions, problems, or challenges.	Students instigate research; develop ideas, solutions, and products; and share creations with authentic audiences.

**How effectively did the  
lesson incorporate  
different aspects of 21st  
century learning?**

# Adapting lessons for 21st century learning

**Step 1:** Navigate to the shared folder and join the same breakout group you were in previously

**Step 2:** Open the Google Doc corresponding to your group

**Step 3:** Brainstorm ideas about how to adapt the lesson so that it might better incorporate each dimension of 21st century learning

**How might we make the learning in this activity more creative?**

How might we help students instigate research; develop ideas, solutions, and products; and share creations with authentic audiences?

**How could you adapt the  
lesson to better  
incorporate different  
aspects of 21st century  
learning?**

**Connect: How do the ideas and information you've just heard connect to ideas you already thought about or knew?**



Powered by  **Poll Everywhere**

Start the presentation to see live content. For screen share software, share the entire screen. Get help at [pollev.com/app](https://pollev.com/app)

**Extend: How has your thinking been extended in some way,  
taking it in new, further, or deeper directions?**



**Challenge: What challenges or puzzles have come up in your mind about this topic now that you've been presented with these new ideas and information?**





# A Challenge to Consider...

Try to apply what we explored today!

Choose a lesson, unit, or project you have used in the past or found online, evaluate it, adapt it, and implement it.

Don't worry about focusing on too many dimensions – choose a few of the aspects you are most interested in.

## Thanks for participating!

[gregory.boldt@uconn.edu](mailto:gregory.boldt@uconn.edu)

[@Gregory\\_Boldt](#)

# References

- Anshari, M., Alas, Y., & Guan, L. S. (2016). Developing online learning resources: Big data, social networks, and cloud computing to support pervasive knowledge. *Education and Information Technologies*, 21(6), 1663–1677. <https://doi.org/10.1007/s10639-015-9407-3>
- Asselin, M., & Moayeri, M. (2011). The participatory classroom: Web 2.0 in the classroom. *Literacy Learning: The Middle Years*, 19(2), 1–7.
- Barker, J., & Sabry, K. (2010). A dynamic information generation approach for HE: IG3 characteristics. *Journal of the Association of Information Technology in Teacher Education*, 1–21. [http://epublications.bond.edu.au/infotech\\_pubs/157](http://epublications.bond.edu.au/infotech_pubs/157)
- Barrell, J. (2010). Problem-based learning: The foundation for 21st century skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn*. Solution Tree Press.
- Barrs, M., & Horrocks, S. (2014). *Educational blogs and their effects on pupils' writing*.
- Beyers, R. N. (2010). Nurturing creativity and innovation through FabKids: A case study. *Journal of Science Education and Technology*, 19(5), 447–455. <https://doi.org/10.1007/s10956-010-9212-0>
- Blikstein, P., Kabayadondo, Z., Martin, A., & Fields, D. (2017). An assessment instrument of technological literacies in makerspaces and FabLabs. *Journal of Engineering Education*, 106(1), 149–175. <https://doi.org/10.1002/jee.20156>
- Brown, B., & Thomas, C. (2017). Strategies for successful group work. *Selected Proceedings of the IDEAS Conference 2017: Leading Educational Change*, 37–46. <http://hdl.handle.net/1880/52096>
- Burke, Q., O'Byrne, W. I., & Kafai, Y. B. (2016). Computational participation: Understanding coding as an extension of literacy instruction. *Journal of Adolescent & Adult Literacy*, 59(4), 371–375. <https://doi.org/10.1002/jaal.496>
- Casa-Todd, J. (2018). Reflections on digital citizenship. *Teacher Librarian*, 45(3), 15–18. <https://doi.org/10.1016/j.infoandorg.2018.04.001>
- Chandra, V. (2014). Developing students' technological literacy through robotics activities. *Literacy Learning: The Middle Years*, 22(3), 24–29. <https://proxy.library.kent.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=98652979&site=ehost-live>
- Davis, E. A., Beyer, C., Forbes, C. T., & Stevens, S. (2011). Understanding pedagogical design capacity through teachers' narratives. *Teaching and Teacher Education*, 27, 797–810. <https://doi.org/10.1016/j.tate.2011.01.005>
- Ehlers, U. D. (2009). Web 2.0 – e-learning 2.0 – quality 2.0? Quality for new learning cultures. *Quality Assurance in Education*, 17(3), 296–314. <https://doi.org/10.1108/09684880910970687>
- Fisher, T. (2016). Independent research, creative productivity, and personalization of learning: A student-centered pedagogy of gifted education. In T. Kettler (Ed.), *Modern curriculum for gifted and advanced academic students* (pp. 171–187). Prufrock Press Inc.
- Friesen, S. (2009). What did you do in school today? Teaching effectiveness: A framework and rubric. *Canadian Education Association*, May.
- Gardner, H. (2010). Five minds for the future. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn*. Solution Tree Press.
- Halverson, R., Kallio, J., Hackett, S., & Halverson, E. (2016). Participatory culture as a model for how new media technologies can change public schools. *The Emerging Learning Design Journal Volume*, 3(1), 23. <http://www.wcer.wisc.edu/publications/working-papers/>
- Haythornthwaite, C. (2015). Rethinking learning spaces: Networks, structures, and possibilities for learning in the twenty-first century. *Communication Research and Practice*, 1(4), 292–306. <https://doi.org/10.1080/22041451.2015.1105773>
- Hockly, N. (2012). Digital literacies. *ELT Journal*, 66(1), 108–112. <https://doi.org/10.1093/elt/ccr077>
- Hull, G., Zacher, J., & Hibbert, L. (2009). Youth, risk, and equity in a global world. *Review of Research in Education*, 33, 117–159. <https://doi.org/10.3102/0091732X08327746>
- Jacobsen, M., Lock, J., & Friesen, S. (2013). Strategies for engagement: Knowledge building and intellectual engagement in participatory learning environments. *Education Canada*, 53(1). <http://www.cea-ace.ca/education-canada/article/strategies-engagement>
- Jamieson-Proctor, R., & Burnett, P. C. (2002). Elementary students, creativity, and technology: Investigation of an intervention designed to enhance personal creativity. *Computers in the Schools*, 19(1–2), 33–48. <https://doi.org/10.1300/J025v19n01>

# References

- Johnson, D. W., & Johnson, R. T. (2010). Cooperative learning and conflict resolution: Essential 21st century skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn*. Solution Tree Press.
- Kelly, R. (2016). *Creative development: Transforming education through design thinking, innovation, and invention*. Brush Education Inc.
- Kettler, T. (2016). A differentiated approach to critical thinking in curriculum design. In T. Kettler (Ed.), *Modern curriculum for gifted and advanced academic students* (pp. 91–110).
- Klein, J. T. (2005). Integrative learning interdisciplinary studies. *Peer Review*, 7(4), 8–10. <https://doi.org/http://dx.doi.org/10.1108/17506200710779521>
- Koh, J. H. L. (2019). TPACK design scaffolds for supporting teacher pedagogical change. *Educational Technology Research and Development*, 67(3), 577–595. <https://doi.org/10.1007/s11423-018-9627-5>
- Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy. *Media, Culture & Society*, 33(2), 211–221. <https://doi.org/10.1177/0163443710393382>
- Lee, S.-H. (2014). Digital literacy education for the development of digital literacy. *International Journal of Digital Literacy and Digital Competence*, 5(3), 29–43. <https://doi.org/10.4018/ijdlc.2014070103>
- Lemke, C. (2010). Innovation through technology. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn*. Solution Tree Press.
- Luckin, R., Clark, W., Graber, R., Logan, K., Mee, A., & Oliver, M. (2009). Do Web 2.0 tools really open the door to learning? Practices, perceptions and profiles of 11-16-year-old students. *Learning, Media and Technology*, 34(2), 87–104. <https://doi.org/10.1080/17439880902921949>
- Marcum, J. W. (2006). The dynamic learning society. *Counterpoints*, 231, 149–169. <https://doi.org/10.1108/ITSE-09-2015-0028>
- McTighe, J., & Seif, E. (2010). An implementation framework to support 21st century skills. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn* (pp. 149–172). Solution Tree Press.
- Neumann, M. M., Finger, G., & Neumann, D. L. (2017). A conceptual framework for emergent digital literacy. *Early Childhood Education Journal*, 45(4), 471–479. <https://doi.org/10.1007/s10643-016-0792-z>
- Nichols, S., Maynard, a, & Brown, C. (2012). Teacher resources online. *Language and Literacy*, 14(2), 62–74. <http://ejournals.library.ualberta.ca/index.php/langandlit/article/view/18009>
- November, A. (2010). Technology rich, information poor. In J. Bellanca & R. Brandt (Eds.), *21st century skills: Rethinking how students learn*. Solution Tree Press.
- Nurlenasari, N., Lidinillah, D. A. M., Nugraha, A., & Hamdu, G. (2019). Assessing 21st century skills of fourth-grade student in STEM learning. *Journal of Physics: Conference Series*, 1318, Article 012058. <https://doi.org/10.1088/1742-6596/1318/1/012058>
- Partnership for 21st Century Learning. (2019). *Framework for 21st century learning definitions* (p. 9). [http://static.battelleforkids.org/documents/p21/P21\\_Framework\\_DefinitionsBFK.pdf](http://static.battelleforkids.org/documents/p21/P21_Framework_DefinitionsBFK.pdf)
- Pow, J., & Fu, J. (2012). Developing digital literacy through collaborative inquiry learning in the Web 2.0 environment – An exploration of implementing strategy findings of a case study. *Journal of Information Technology Education: Research*, 11(2004), 287–299. <http://www.jite.org/documents/Vol11/JITEv11p287-299POW1194.pdf>
- Recker, M., Sellers, L., & Ye, L. (2013). Teacher design using online learning resources: A comparative case study of science and mathematics teachers. *Education Research International*, 2013, 1–11. <https://doi.org/10.1155/2013/243248>
- Robinson, K., & Aronica, L. (2015). *Creative schools: The grassroots revolution that's transforming education*. Penguin Books.
- Sabry, K., & Barker, J. (2009). Dynamic interactive learning systems. *Innovations in Education and Teaching International*, 46(2), 185–197. <https://doi.org/10.1080/14703290902843836>
- Schrand, T. (2008). Tapping into active learning and multiple intelligences with interactive multimedia: A low-threshold classroom approach. *College Teaching*, 56(2), 78–84. <https://doi.org/10.3200/CTCH.56.2.78-84>
- Shelby-Caffey, C., Ubéda, E., & Jenkins, B. (2014). Digital storytelling revisited: An educator's use of an innovative literacy practice. *The Reading Teacher*, 68(3), 191–199. <https://doi.org/10.1002/trtr.1273>
- Walker, A., Recker, M., Ye, L., Robertshaw, M. B., Sellers, L., & Leary, H. (2012). Comparing technology-related teacher professional development designs: A multilevel study of teacher and student impacts. *Educational Technology Research and Development*, 60(3), 421–444. <https://doi.org/10.1007/s11423-012-9243-8>