Spring 2022: R678 Emerging Learning Technologies

"Alternative Student-Driven Syllabus" (Updated May 2, 2022)

Indiana University, School of Education, Woodburn 203, Mondays 7:00-9:45 pm
Section 31451 FTF
Section 31452 Online, Canvas: https://iu.instructure.com/courses/2033732
General Course Link to Canvas: http://canvas.iu.edu/

Instructor: Curtis J. Bonk, Professor, Instructional Systems Technology Dept.
Monster Syllabus (HTML): http://curtbonk.com/R678_online_syllabus_spring_2022.htm
Alt. Syllabus (HTML): http://curtbonk.com/R678_alt_online_syllabus_spring_2022.htm
Alternative Syllabus Sign-up: http://trainingshare.com/r678topics.php
Office Hours and Optional Virtual Sessions in Zoom: https://IU.zoom.us/j/8123222878

Weekly Discussion Moderators: http://www.trainingshare.com/r685.php
Participant Bios and Interests (**Padlet**): https://padlet.com/cmsmeltz/h6zbzpdfos6x19l
Online Role Play: http://www.trainingshare.com/r678roles.php
Dropbox link for course files (R678 Spring of 2022):
https://www.dropbox.com/sh/8rgs24brj9qysuv/AADY5FZgV7uL3blwG8nx8xkWa?dl=0

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Alternative Syllabus Weekly Topics (sign up: http://trainingshare.com/r678topics.php)

Weekly Topics of Alternative Syllabus for R678 Spring 2022

Week 1. (January 10) Emerging Learning Tech Overview (read ETR&D special issue Part 1)
Week 2. (January 16) Emerging Learning Tech Overview (read ETR&D special issue Part 2)
Week 3. (January 24) Emerging Learning Tech Overview (read ETR&D special issue Part 3)
Week 4. (January 31) STEM Education and Drones
Week 5. (February 7) Computational Thinking
Week 6. (February 14) Adult Ed and Open Education Technologies
Week 7. (February 21) Technologies for Teacher Education Programs
Week 8 (February 28) Emerging Technologies in Foreign Language Learning
Week 9. (March 7) Virtual Assistants / Intelligent Personal Assistants
Week 10. (March 21) Digital Play and Tech Toys
Week 11. (March 28) Gamification & Game-Based Learning
Week 12. (April 4) Equity and belongingness in Science Education
Week 13. (April 11) Pros and Cons of Microlearning
Week 14. (April 18) Dark Patterns in Instructional Design
Week 15. (April 25) Micro credentials, Digital Badging, and the Future of Learning and Education

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Summary of Course Tasks, Due Dates, and Grading for Alternative Syllabus

Tasks	Points	Due dates
1. Start: Design One Week of the Alternative Syllabus	20	January 24
2. Ongoing: Discussion and Discussion Moderator in Canvas: http://www.trainingshare.com/r685.php or http://trainingshare.com/r678topics.php	50	Each week
3. Midterm: Tidbit and Video Reflection Paper	50	February 21 (+7 day grace)
4. Midterm: ETR&D Review and Critique and Interview	50	February 21 (+7 day grace)
5. Final: Reflect on alternative syllabus and taking control for 1 week	50	April 11 (+7 day grace)
6. Final: Student determined project	70	April 11 (+7 day grace)
Total Points	290	

Total points will determine your final grade. I will use the following grading scale:

A+ = 290 high score	B- = 232 points
A = 272 points	C+ = 222 points
A- = 261 points	C = 213 points
B+ = 250 points	C - = 203 points
B = 242 points	F/FN = no work rec'd or signif. inadequate/impaired

Lateness Policy: I usually accept anything turned in within 96 hours (4 days) of the original due date. Assignment E and F have a five-day grace period. Midterm tasks have a 7 day grace period.

1. Design Learning Topic and Readings for One Week (20 points: Due January 24)

You are to add a week to the alternative syllabus, alone or in a pair. Please include a title and 4-7 articles that are free and open access. You might also include a couple of relevant videos, animations, simulations, etc. as well as a few pertinent news stories. Send these to me (cjbonk@indiana.edu) and the Christian Smeltzer cmsmeltz@iu.edu. Alternative Syllabus Sign-up: http://trainingshare.com/r678topics.php

2. Discussion Moderation and Interaction in Canvas (50 points: Due each week)

You will start and moderate discussion for your 50 points (50 points): There will be two discussion forums: (1) one for the monster 100+ syllabus, and (2) one for the alternative student-driven syllabus. Please contribute to one or both of them each week. At the start of each week, I want one person to post a short summary to Canvas on at least 4 of the main articles assigned for that week. That person is the starter for discussion. Other students will add to their conversation with their reflections and reactions. If you have created a week in the alternative syllabus, you probably should lead discussion that week. To moderate the alternative syllabus discussion, you can sign up here: https://trainingshare.com/r678alt.php

3. Tidbit and Video Reflection Paper (50 points: Due February 21)

Tidbits and Videos (50 points): Besides reading 3-4 assigned articles each week, during the semester, I want you to read at least 100 total tidbits from the list of tidbit readings or about 5 or 6 per week. Typically, these are very short online news or magazine articles—see tidbits in the monster syllabus or find your own. I also want you to watch at least 5 videos related such as those listed in the monster syllabus or similar ones that you find. On February 21, you will turn in a list of your top 50 tidbits read so far (best ones at the top) and top 3 videos watched. You might also note a few tidbits that you did not enjoy. After those lists, I want you to reflect for 1-2 single spaced pages on what you learned from those tidbits. I am not asking you to summarize each article or video; instead reflect on your learning in general. What themes, trends, or concepts were clarified for you? What new insights did you gain? What inspirations did you feel? You might include brief comments at the beginning or end of the paper on why you ranked the tidbits and videos the way you did. There are examples in Dropbox. Be creative.

4. ETR&D Review and Critique and Interview (50 points: Due February 21)

During the first three weeks of the semester, we will read from the special issue on Systematic Reviews of Research on Emerging Learning Environments and Technology that Vanessa Dennen, Florence Martin, and I edited that was published in the summer of 2020. I want you to review and critique at least four of the 16 articles in this special issue (2-3 pages single spaced). In addition, I want you to interview one or two of the contributors to this special issue. I have all their email addresses so just ask if you need them. I am also happy to make introductions. Perhaps you might ask them questions like the following: What were they attempting to accomplish with the research in their article? What do they see as the strengths and weaknesses of that article? What is their current research targeting and why? Where is their research headed in the future? (1-2 or so pages). Total of 3-5 single spaced pages not counting references and pictures of your grandmother (which might add a bonus point).

> Martin, F., Dennen, V. P., & Bonk, C, J. (Eds.) (2020). Special Issue: Systematic Reviews of Research on Emerging Learning Environments and Technology. Educational Technology Research and Development (ETR&D) 68(4). https://link.springer.com/journal/11423/volumes-and-issues/68-4

5. Reflection on the Alternative Syllabus and the Learner-Centered Approach (50 points: Due April 11)

In this option, I want you to reflect on the teaching philosophy of the alternative syllabus. First, can you give it a label or a name? Second, what learning principles are embedded in this approach and what could perhaps be added or modified? Please elaborate on each key principle or component. What would be the result if the majority of K-12 teachers and university instructors incorporated such as teaching approach? Are there any problems or challenges that you saw with the alternative syllabus approach this semester? What were the benefits or gains, if any? Describe how your learning approach and outcomes were elevated or lowered from having the alternative syllabus and the many weeks that were learner controlled. How could the activity be better designed? In this reflection, please turn in a 3-4 page single spaced paper not counting references and appendices and pictures of you dogs and cats or other family pets or that of your roommate or best friend's pets (for a potential bonus point...please include their name).

6. Final Student Determined Project (70 points: Due April 11)
You have total control over your final task in this course. People using the monster syllabus are going to do things like create a book with Pressbook, write a chapter for a Wikibook chapter, take a MOOC and get a certificate and write a reflection paper on it, create a video summary of their learning, design a podcast show, craft a series of technology tutorials for the workplace, review a MOOC and perhaps interview the instructors or designers of it, generate a strategic plan for mobile learning, open textbooks, or OER, design a MOOC or other form of online instruction, or some other type of personally selected task. You decide of the project based on your needs, interests, and passions; however, please let me know your plan or possible project by the end of spring break (March 20) if possible. Please include a 1-2 page single spaced reflection paper with any of these project options.

Weekly Readings Alternative Syllabus

Week 1. (January 10) Emerging Learning Tech Overview (read ETR&D special issue Part 1, Week led by Curt Bonk)
Week 1. ETR&D special issue (first 5 articles—pick at least 3)

> Martin, F., Dennen, V. P., & Bonk, C, J. (Eds.) (2020). Special Issue: Systematic Reviews of Research on Emerging Learning Environments and Technology. Educational Technology Research and Development (ETR&D) 68(4). https://link.springer.com/journal/11423/volumes-and-issues/68-4

Week 2. (January 16) Emerging Learning Tech Overview (read ETR&D special issue Part 2, Week led by Curt Bonk)
Week 2. ETR&D special issue (middle 6 articles—pick at least 3)

Week 3. (January 24) Emerging Learning Tech Overview (read ETR&D special issue Part 3, Week led by Curt Bonk)
Week 3. ETR&D special issue (last 5 articles—pick at least 3)

Week 4. (January 31) STEM Education and Drones (Week led by Curt Bonk)

1. Journal of STEM Education: Innovations and Research. (n.d.). Retrieved January 26, 2022, from https://www.jstem.org/jstem/index.php/JSTEM

2. Jae Hyeon Ryu Biography. (n.d.). Retrieved January 26, 2022, from https://www.uidaho.edu/cals/soil-and-water-systems/our-people/jae-hyeon-ryu

3. The official idrone program website. (n.d.). IDrone Program. Retrieved January 26, 2022, from https://www.idroneprogram.org/

4. Ryu, J., Walters, R., & Ziegler, H. (2021). Interstate Drone League (Idrone national) to promote hands-on remote STEM learning using cloud-based virtual meeting platforms in the global pandemic (COVID-19): IDrone National. Journal of STEM Education: Innovations and Research, 22(4). https://www.jstem.org/jstem/index.php/JSTEM/article/view/2534

5. Ryu, J., LaPaglia, S., & Walters, R. (2020). Idaho drone league (Idrone) to stimulate stem workforce. Journal of STEM Education: Innovations and Research, 21(2). https://www.jstem.org/jstem/index.php/JSTEM/article/view/2384

Week 5. (February 7) Computational Thinking (Articles in Dropbox, Week led by Ge Yan and Christian Smeltzer):

Introduction of CT: Part #1

1. Grover, S., & Pea, R. (2018). Computational Thinking: A Competency Whose Time Has Come. In S. Sentance, E. Barendsen & C. Schulte (Eds.). Computer Science Education: Perspectives on Teaching and Learning in School (pp. 19–38). London: Bloomsbury Academic. Retrieved January 26, 2022, from http://dx.doi.org/10.5040/9781350057142.ch-003

2. Yadav, A., Hong, H., & Stephenson, C. (2016). Computational thinking for all: Pedagogical approaches to embedding 21st century problem solving in k-12 classrooms. TechTrends, 60(6), 565–568. https://doi.org/10.1007/s11528-016-0087-7

3. Weintrop, D., Beheshti, E., Horn, M., Orton, K., Jona, K., Trouille, L., & Wilensky, U. (2016). Defining computational thinking for mathematics and science classrooms. Journal of Science Education and Technology, 25(1), 127–147. https://doi.org/10.1007/s10956-015-9581-5

4. Denning, P. J. (2017). Remaining trouble spots with computational thinking. Communications of the ACM, 60(6), 33–39. https://doi.org/10.1145/2998438

Introduction of CT: Part #2

1. Kazimoglu, C., Kiernan, M., Bacon, L., & MacKinnon, L. (2012). Learning programming at the computational thinking level via digital game-play. Procedia Computer Science, 9, 522–531. https://doi.org/10.1016/j.procs.2012.04.056

2. Palts, T., & Pedaste, M. (2020). A model for developing computational thinking skills. Informatics in Education, 19(1), 113–128. https://doi.org/10.15388/infedu.2020.06

3. Romero, M., Lepage, A., & Lille, B. (2017). Computational thinking development through creative programming in higher education. International Journal of Educational Technology in Higher Education, 14(1), 42. https://doi.org/10.1186/s41239-017-0080-z

4. Swaid, S. I. (2015). Bringing computational thinking to stem education. Procedia Manufacturing, 3, 3657–3662. https://doi.org/10.1016/j.promfg.2015.07.761

5. Voogt, J., Fisser, P., Good, J., Mishra, P., & Yadav, A. (2015). Computational thinking in compulsory education: Towards an agenda for research and practice. Education and Information Technologies, 20(4), 715–728. https://doi.org/10.1007/s10639-015-9412-6

6. Wing, J. M. (2008). Computational thinking and thinking about computing. Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, 366(1881), 3717–3725. https://doi.org/10.1098/rsta.2008.0118

Emerging Technologies for Computational Thinking

1. Emerging Technologies as pedagogical tools:
    a. Oliveira, A., Feyzi Behnagh, R., Ni, L., Mohsinah, A. A., Burgess, K. J., & Guo, L. (2019). Emerging technologies as pedagogical tools for teaching and learning science: A literature review. Human Behavior and Emerging Technologies, 1(2), 149–160. https://doi.org/10.1002/hbe2.141
2. Educational Robotics:
    a. Ioannou, A., & Makridou, E. (2018). Exploring the potentials of educational robotics in the development of computational thinking: A summary of current research and

practical proposal for future work. Education and Information Technologies, 23(6), 2531–2544. https://doi.org/10.1007/s10639-018-9729-z

3. AIoT and AR for:
    a. Lin, Y. S., Chen, S. Y., Tsai, C. W., & Lai, Y. H. (2021). Exploring computational thinking skills training through augmented reality and aiot learning. Frontiers in Psychology, 12, 640115. https://doi.org/10.3389/fpsyg.2021.640115
4. Indiana School Tech Plan:
    a. DOE. (2021, July 27). Indiana school tech plan. DOE. https://www.in.gov/doe/it/indiana-school-tech-plan/

Tidbits:

1. *Computational thinking*. (n.d.). Unplugged; Code.org. Retrieved March 4, 2022, from https://code.org/curriculum/course3/1/Teacher

2. *Computational tools for STEM education*. (n.d.). CT-STEM. Retrieved March 4, 2022, from https://ct-stem.northwestern.edu/

3. *Exploring Computational Thinking*. (n.d.). Google for Education. Retrieved March 4, 2022, from https://edu.google.com/resources/programs/exploring-computational-thinking/

4. Jones, D. (2018, May 13). *10 classroom-ready computational thinking resources for k-12*. Getting Smart. https://www.gettingsmart.com/2018/05/13/10-classroom-ready-computational-thinking-resources-for-k-12/

5. *K12 computational thinking resources*. (n.d.). Ignite my future in school. Retrieved March 4, 2022, from https://www.ignitemyfutureinschool.org/resources/k12-computational-thinking-resources

6. Mills, K. (2020, March 3). *New computational thinking resources for powerful learning*. Digital Promise. https://digitalpromise.org/2020/03/03/new-computational-thinking-resources-for-powerful-learning/

7. Part 2: Computational thinking: over 50 resources to teach ct across the curriculum. (2018, July 25). *21 St Century Educational Technology and Learning*. https://21centuryedtech.wordpress.com/2018/07/25/part-2-computational-thinking-over-50-resources-to-teach-ct-across-the-curriculum/

8. Ridgway, R. (2021). The intentional integration of computational thinking. *Science Scope*, *44*(5). https://www.nsta.org/science-scope/science-scope-mayjune-2021/intentional-integration-computational-thinking

9. Sykora, C. (2021, April 23). *Computational thinking for all*. ISTE. https://www.iste.org/explore/computational-thinking/computational-thinking-all

10. Treada, Y. (n.d.). *A powerful model for understanding good tech integration*. Edutopia; Edutopia. Retrieved March 4, 2022, from https://www.edutopia.org/article/powerful-model-understanding-good-tech-integration

11. Valenzuela, J. (2020, September 22). *How to develop computational thinkers*. ISTE. https://www.iste.org/explore/how-develop-computational-thinkers

12. Waterman, K. P., Goldsmith, L., & Pasquale, M. (2020). Integrating Computational Thinking into Elementary Science Curriculum: An Examination of Activities that Support Students' Computational Thinking in the Service of Disciplinary Learning. *Journal of Science Education and Technology*, *29*(1), 53–64. https://doi.org/10.1007/s10956-019-09801-y

13. (N.d.-a). ITEEA Computational Thinking; ITEEA. Retrieved March 4, 2022, from https://www.iteea.org/Resources1507/ComputationalThinking/122579.aspx

14. (N.d.-b). Computational Thinking Resources for Teaching; Computational Thinking Initiatives. Retrieved March 4, 2022, from https://www.computationinitiative.org/resources/teaching/

Video:

1. Yadav, A., Stephenson, C., & Hong, H. (2017). Computational thinking for teacher education. Communications of the ACM, 60(4), 55–62. https://doi.org/10.1145/2994591

Free Books:

1. Ottenbreit-Leftwich, A. & Kimmons, R. (2020). *The K-12 Educational Technology Handbook (1st ed.)*. EdTech Books. https://edtechbooks.org/k12handbook

*Curator Note: which teaches the foundations of computing with a critical lens, and offers example unit plans for teaching these foundations in middle and high school settings.

1. Ko, A. J., Beitlers, A., Wortzman, B., Davidson, M., Oleson, A., Kirdani-Ryan, M., & Druga, S. (2022). Critically Conscious Computing: Methods for Secondary Education. Critically Conscious Computing. Retrieved 1/26/2022 https://criticallyconsciouscomputing.org/

Week 6. (February 14) Adult Ed and Open Education Technologies (Week led by Sarah Obermeyer)

*Curator Note: I focused a little more on the application/practical side because that is what interests and concerns me. Also, the article from SkillRise mentions 2020, but the article itself did not have a date on it, so I cited it as n.d.

Articles/Reports

1. Finkelstein, J., Knight, E., & Manning, S. (2013). The potential and value of using digital badges for adult learners [draft]. American Institutes for Research. https://lincs.ed.gov/professional-development/resource-collections/profile-716

2. Godwin, A., & Petrides, L. (n.d.). Using open educational practices to support adult learning. SkillRise. https://skillrise.org/article/using-open-educational-practices-support-adult-learning

3. Nazerian, T. (13 November, 2018). Facebook launches courses to help adult learners skill up. EdSurge. https://www.edsurge.com/news/2018-11-13-facebook-launches-courses-to-help-adult-learners-skill-up

4. Russel, M., Lippincott, J., & Getman, J. (2013). Connected teaching and personalized learning: Implications of the National Education Technology Plan (NETP) for adult education [draft].

American Institutes for Research. https://lincs.ed.gov/professional-development/resource-collections/profile-709

Video

1. American Institutes for Research. (8 July, 2015). Open educational resources to support STEM teaching and learning in adult education [video]. https://www.air.org/project/open-educational-resources-support-stem-teaching-and-learning-adult-education-oer-stem

AE Teaching Resources

1. Adult education open community of resources group resources. (n.d.). OER Commons. Retrieved January 26, 2022, from https://www.oercommons.org/groups/adult-education-open-community-of-resources/45/
2. Build a lesson with open educational resources (OER). (n.d.). LINCS | Adult Education and Literacy | U.S. Department of Education. Retrieved January 26, 2022, from https://lincs.ed.gov/state-resources/professional-development-center/training/it10vs
3. OER stem project. (n.d.). LINCS | Adult Education and Literacy | U.S. Department of Education. Retrieved January 26, 2022, from https://lincs.ed.gov/programs/oerstem
4. Open math--open resources: Engage adult learners for 21st-century skills (OER). (n.d.). LINCS | Adult Education and Literacy | U.S. Department of Education. Retrieved January 26, 2022, from https://lincs.ed.gov/state-resources/professional-development-center/training/it09vf
5. Open science--open resources: Engage your students in science learning (OER). (n.d.). LINCS | Adult Education and Literacy | U.S. Department of Education. Retrieved January 26, 2022, from https://lincs.ed.gov/state-resources/professional-development-center/training/it08vf

Week 7. (Feb. 21) Technologies for Teacher Education Programs (Week led by Sau Hou Chang)

1. Stokes-Beverley, C. & Simoy, I. (2016). Advancing educational technology in teacher preparation: Policy brief. U.S. Department of Education. Retrieved from https://tech.ed.gov/files/2016/12/Ed-Tech-in-Teacher-Preparation-Brief.pdf
2. Trainin, G., Friedrich, L., & Deng, Q. (2018). The impact of a teacher education program redesign on technology integration in elementary preservice teachers. *Contemporary Issues in Technology and Teacher Education, 18*(4). Retrieved from https://citejournal.org/volume-18/issue-4-18/general/the-impact-of-a-teacher-education-program-redesign-on-technology-integration-in-elementary-preservice-teachers/
3. Cohen, J. (2017). Maker Principles and Technologies in Teacher Education: A National Survey. *Journal of Technology and Teacher Education, 25*(1), 5-30. Retrieved from https://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1016&context=ltd_facpub
4. Alelaimat, A. M., Ihmeideh, F. M., Alkhawaldeh, M. F. (2020). Preparing preservice teachers for technology and digital media integration: Implications for early childhood teacher education programs. *International Journal of Early Childhood, 52*, 299-317. https://doi.org/10.1007/s13158-020-00276-2

5. Dieker, L. A., Kennedy, M. J., Smith, S., Vasquez III, E., Rock, M., & Thomas, C. N. (2014). *Use of technology in the preparation of pre-service teachers*. Retrieved from https://ceedar.education.ufl.edu/wp-content/uploads/2014/10/IC-11_FINAL_05-26-15.pdf
6. Barmore, P. (2015). *Teachers colleges struggle to blend technology into teacher training*. The Hechinger Report. Retrieved from https://hechingerreport.org/teachers-colleges-struggle-to-blend-technology-into-teacher-training/
7. Evans, D. (2021). *How to use technology to help teachers be better and to make life better for teachers*. World Bank Blogs. Retrieved from https://blogs.worldbank.org/education/how-use-technology-help-teachers-be-better-and-make-life-better-teachers
8. Websites:
    - International Society for Technology in Education (ISTE) website https://www.iste.org/areas-of-focus/teacher-education
    - Office of Educational Technology https://tech.ed.gov/
    - Society for Information Technology and Teacher Education (SITE) https://site.aace.org/about/

Week 8 (February 28) Emerging Technologies in Foreign Language Learning (Week led by Charity Jackson)

Articles:

1. Dizon, G., & Tang, D. (2020). Intelligent personal assistants for autonomous second language learning: An investigation of Alexa. *The JALT CALL Journal*, *16*(2), 107–120. https://doi.org/10.29140/jaltcall.v16n2.273

2. Pinto, R. D., Peixoto, B., Melo, M., Cabral, L., & Bessa, M. (2021). Foreign language learning gamification using virtual reality—A systematic review of empirical research. *Education Sciences*, *11*(5), 222. https://doi.org/10.3390/educsci11050222

3. van den Berghe, R., Verhagen, J., Oudgenoeg-Paz, O., van der Ven, S., & Leseman, P. (2019). Social robots for language learning: A review. *Review of Educational Research*, *89*(2), 259–295. https://doi.org/10.3102/0034654318821286

4. Zhou, Y., & Wei, M. (2018). Strategies in technology-enhanced language learning. *Studies in Second Language Learning and Teaching*, *8*(2), 471–495. https://doi.org/10.14746/ssllt.2018.8.2.13

5. Zou, D., Xie, H., & Wang, F. L. (2018). Future trends and research issues of technology-enhanced language learning: A technological perspective. *Knowledge Management & E-Learning: An International Journal*, 426–440. https://doi.org/10.34105/j.kmel.2018.10.026

Videos:

1. *3 ways virtual reality can enhance learning*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=jRQzl8ewDMQ

2. *Future trends in language learning*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=iEIP7SxC6Sc

3. *How to Learn languages with video games (2018)*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=KW26SYLWwyQ

4. *Jared gimbel—Using video games to learn and maintain languages*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=nm6XdyPV-rw

5. *Language learning and technology| #enlightED*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=t4ExmELmrOo

6. *Language x tech: Getting started with computational linguistics*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=t2Z2O1ttX7Y

7. *Learn languages in virtual reality with immerseme—English, japanese, german, and spanish on quest*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=43wql7LuNDQ

8. *Learning a second language with a social assistive robot*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=16in922JTsw

9. *Ubiquitous technology in teaching of foreign languages—Digital language teaching global webinar*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=4ulv_N-khAs

10. *Using artificial intelligence to help you learn a new language*. (n.d.). Retrieved January 30, 2022, from https://www.youtube.com/watch?v=DTUB2rgEJmM

Websites:

1. *10 Best language learning apps 2022*. (2019, October 16). Lingualift. https://www.lingualift.com/blog/best-language-learning-apps/

2. *Emerging & mobile technologies in foreign language learning*. (n.d.). Retrieved January 30, 2022, from https://scholar.harvard.edu/eherrera/blog/emerging-mobile-technologies-foreign-language-learning

3. Fischer, K., Niebuhr, O., & Alm, M. (2021). Robots for foreign language learning: Speaking style influences student performance. *Frontiers in Robotics and AI*, *8*. https://www.frontiersin.org/article/10.3389/frobt.2021.680509

4. Rohrbach, J. (n.d.). *Council post: How new technologies are changing language learning, for better and worse*. Forbes. Retrieved January 30, 2022, from https://www.forbes.com/sites/forbesnycouncil/2018/05/10/how-new-technologies-are-changing-language-learning-for-better-and-worse/

5. Schubert, L. (2020). Computational linguistics. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2020). Metaphysics Research Lab, Stanford University. https://plato.stanford.edu/archives/spr2020/entries/computational-linguistics/

6. Top 5 tech trends in language learning. (2019, October 8). *OptiLingo*. https://www.optilingo.com/blog/general/top-5-tech-trends-in-language-learning/

7. *Top 10 elearning trends for languages training in 2020*. (2020, April 18). ELearning Industry. https://elearningindustry.com/10-elearning-trends-language-training-2020

8. Using technology in language teaching | world of better learning. (2021, October 29). *World of Better Learning | Cambridge University Press*. https://www.cambridge.org/elt/blog/2021/10/29/technology-language-teaching/

9. White, K. (2021, August 26). *5 algorithms uniting ai and foreign language learning*. Medium. https://becominghuman.ai/5-algorithms-uniting-ai-and-foreign-language-learning-ebe7ba827369

Week 9. (March 7) Virtual Assistants/Intelligent Personal Assistants (Week led by Gilbert Dizon)

1. Dizon, G. (2020). Evaluating intelligent personal assistants for L2 listening and speaking development. Language Learning & Technology, 24(1), 16–26. http://scholarspace.manoa.hawaii.edu/handle/10125/44705

2. Dizon, G., & Tang, D. (2020). Intelligent personal assistants for autonomous second language learning: An investigation of Alexa. The JALT CALL Journal, 16(2), 107–120. https://doi.org/10.29140/jaltcall.v16n2.273

3. Kent, D. (2021). Voice-user interfaces for TESOL: Potential and receptiveness among native and non-native English speaking instructors. *Language Learning & Technology*, 25(3), 27–39. http://hdl.handle.net/10125/73444

4. Kukulska-Hulme, A., & Lee, H. (2020). Intelligent assistants in language learning: An analysis of features and limitations. In K.-M. Frederiksen, S. Larsen, L. Bradley, & S. Thouësny (Eds.), CALL for widening participation: Short papers from EUROCALL 2020 (1st ed., pp. 172–176). Research-publishing.net. https://doi.org/10.14705/rpnet.2020.48.1184

5. Pradhan, A., Lazar, A., & Findlater, L. (2020). Use of intelligent voice assistants by older adults with low technology use. *ACM Transactions on Computer-Human Interaction (TOCHI)*, *27*(4), 1–27. https://doi.org/10.1145/3373759

6. Smith, E., Sumner, P., Hedge, C., & Powell, G. (2021). Smart speaker devices can improve speech intelligibility in adults with intellectual disability. *International Journal of Language & Communication Disorders*, *56*, 583–93. https://doi.org/10.1111/1460-6984.12615

7. Wu, Y., Rough, D., Bleakley, A., Edwards, J., Cooney, O., Doyle, P. R., Clark, L., & Cowan, B. R. (2020). See what i'm saying? Comparing intelligent personal assistant use for native and non-native language speakers. *22nd International Conference on Human-Computer Interaction with Mobile Devices and Services*, 1–9. https://doi.org/10.1145/3379503.3403563

8. Xu, Y., Wang, D., Collins, P., Lee, H., & Warschauer, M. (2021). Same benefits, different communication patterns: Comparing children's reading with a conversational agent vs. a human partner. *Computers & Education*, *161*, 1-17. https://doi.org/10.1016/j.compedu.2020.104059

*Curator Note: Other articles behind a subscription paywall (I have PDF versions of these articles and can share if necessary)

1. Chung, H., Iorga, M., Voas, J., & Lee, S. (2017). "Alexa, can i trust you? ." Computer, 50(9), 100–104. https://doi.org/10.1109/MC.2017.3571053 Copy of paper can be found here: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5714311/

2. Daley, S., & Pennington, J. (2020). Alexa the teacher's pet: A review of research on virtual assistants in education. In T. Bastiaens (Ed.), EdMedia+ innovate learning 2020 (pp.138–146). AACE. https://www.learntechlib.org/primary/p/217296/ Copy of paper can be found here: https://drive.google.com/file/d/1W9E0NtMSsEp6sYzM5jp76rbFETJkZyFM/view?usp=sharing

3. Dizon, G. (2021). Affordances and constraints of intelligent personal assistants for second-language learning. *RELC Journal*, 1-18. https://doi.org/10.1177/00336882211020548 Copy of paper can be found here: https://drive.google.com/file/d/1bYlJWexblC4oANxte-fyVDdBiUCX0r5Q/view?usp=sharing

News stories

1. Bajorek, J. P. (2019, May 10). Voice recognition still has significant race and gender biases. Harvard Business Review. https://hbr.org/2019/05/voice-recognition-still-has-significant-race-and-gender-biases

2. Lynskey, D. (2019, October 9). 'Alexa, are you invading my privacy?' – the dark side of our voice assistants. The Guardian. https://www.theguardian.com/technology/2019/oct/09/alexa-are-you-invading-my-privacy-the-dark-side-of-our-voice-assistants

3. Yang, M. (2021, December 30). Amazon's Alexa device tells 10-year-old to touch a penny to a live plug socket. The Guardian. https://www.theguardian.com/technology/2021/dec/29/amazons-alexa-child-penny-live-plug

4. Zewe, A. (2021, November 4). Toward speech recognition for uncommon spoken languages. MIT News. https://news.mit.edu/2021/speech-recognition-uncommon-languages-1104

Week 10. (March 21) Digital Play and Tech Toys (Week led by Rebecca Horrace)

1. Fleer, M., (2016). Theorising digital play: A cultural-historical conceptualisation of children's engagement in imaginary digital situations. International Research in Early Childhood Education, 7(2), 75-90.

2. Loebenberg, A. (2013). Playing in virtual spaces: Using ethnography to explore a new area of research. International Journal of Play, 2(2), 117 133. https://doi.org/10.1080/21594937.2013.814271

3. Metatla, O., Bardot, S., Cullen, C., Serrano, M., & Jouffrais, C. (2020). Robots for inclusive play: Co-designing an educational game with visually impaired and sighted children. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (pp. 1-13). Association for Computing Machinery, Honolulu, HI.

4. Marsh, J. (2017). The internet of toys: A posthuman and multimodal analysis of connected play. Teachers College Record, 119, 1-32.

5. Marsh, J., Plowman, L., Yamada-Rice, D., Bishop, J., & Scott, F. (2018). Play and creativity in young children's use of apps. British Journal of Educational Technology, 49(5), 870-882. http://doi.org.10.1111.bjet.12622

6. Wernholm, M. (2021). A theoretical framework for understanding children's learning at play in a hybrid reality. International Journal of Play, 10(3), 261-284. https://doi.org/10.1080/21594937.2021.1959234

7. Wohlwend, K.E., & Kargin, T. (2013). "Cause I know how to get friends—plus they like my dancing": (L)earning the nexus of practice in Club Penguin. In A. Burke & J. Marsh (Eds.), Children's virtual play worlds: Culture, learning and participation. Peter Lang.

8. Horrace, R.M. (2021). STREAM into online play groups: How children adapt to play in a rapidly digitized world. International Journal of the Whole Child, 6(1), 78-87.

Silver Lining for Learning Episodes on Play:

1. Episode 62 | Participatory creativity with Vlad Glaveanu & Edward Clapp; Blog: https://silverliningforlearning.org/episode-62-participatory-creativity-with-vlad-glaveanu-edward-clapp/**;** Video (100:45): https://youtu.be/7K-vR6e_8Po

2. Episode 63 | Let children play with Pasi Sahlberg & Alex Harper; Blog: https://silverliningforlearning.org/episode-63-let-children-play-with-pasi-sahlberg-alex-harper/**;** Video (102:08)**:** https://www.youtube.com/watch?v=UrcwTIDmM3Q

3. Episode 64 | Self-directed learning with Peter Gray and Bria Bloom; Blog: https://silverliningforlearning.org/episode-64-self-directed-learning-with-peter-gray-and-bria-bloom/**;** Video (104:40): https://www.youtube.com/watch?v=R9ju9QAl1EA

Week 11. (March 28) Gamification & Game-Based Learning (Week led by Kimberly Tarvis)

1. Abu-Dawood, S. (2017, November 6-11). Gamification for change: A new approach to investigate students' attitudes towards educational gamification in online learning environments [Paper presentation]. Association for Educational Communications & Technology 40th Annual Meeting, Jacksonville, FL, United States. https://members.aect.org/pdf/Proceedings/proceedings17/2017/17_01.pdf

2. Adipat, S., Laksana, K., Busayanon, K., Asawasowan, A., & Adipat, B. (2021). Engaging students in the learning process with game-based learning: The fundamental concepts. International Journal of Technology in Education, 4(3), 542-552. https://doi.org/10.46328/ijte.169

3. Almeida, F., & Simoes, J. (2019). The role of serious games, gamification and industry 4.0 tools in the education 4.0 paradigm. Contemporary Educational Technology, 10(2), 120-136. https://doi.org/10.30935/cet.554469

4. Barker, K., & Lakshmivarahan, S., Ghorbani-Renani, N., Rangrazjeddi, A., González, A. D., Wood, R., & Demagalski, J. (2018). HF002: Applied game theory to enhance air traffic control training. https://coetthp.org/wp-content/uploads/HF002-Applied-Game-Theory-to-Enhance-ATC-Training-Final-Report.pdf

5. Buckley, P., Doyle, E., & Doyle, S. (2017). Game on! Students' perspectives of gamification learning. Educational Technology & Society, 20(3), 1-10. https://drive.google.com/file/d/1kjNXZqYDaTKHtl07UYOQ9aoRUglm8zBl/view

6. Buras, N., Merrild, L., & Kim, W. (2021). Enabling Interactivity through Design: Outcomes from a Gamified Health Insurance Onboarding Course. The Journal of Applied Instructional Design, 10(2). https://dx.doi.org/10.51869/102/nb

7. Fleischman, K., & Ariel, E. (2016). Gamification in science education: Gamifying learning of microscopic processes in the laboratory. Contemporary Educational Technology, 7(2), 138-159. https://doi.org/10.30935/cedtech/6168

    a. *Curator Note: This one is specific for Tulli!

8. Huang, B., & Hew, K. F. (2021). Using gamification to design courses: Lessons learned in a three-year design-based study. Educational Technology & Society, 24(2), 44-63. https://drive.google.com/file/d/1ewMjpsga_Mjc7NJPkX-Osy8Rc6dvBd_J/view

9. Nolan, J., & McBride, M. (2014). Beyond gamification: Reconceptualizing game-based learning in early childhood environments. Information, Communication & Society, 17(5), 594-608, https://doi.org/10.1080/1369118X.2013.808365

10. Rahmadi, I. F., Lavicza, Z., & Houghton, T. (2021). Defining microgames in education context. International Journal of Emerging Technologies in Learning, 16(22), 4–16. https://doi.org/10.3991/ijet.v16i22.20929

11. Rahmadi, I. F., Lavicza, Z., & Houghton, T. (2021). Towards user-generated microgames for supporting learning: An investigative exploration. Contemporary Educational Technology, 13(3), ep299. https://doi.org/10.30935/cedtech/10785

12. Ruble, J., Cole, J.D., & Jordan, B.E. (2021). Chefs in Training! Engaging Pharmacy Students through Course Gamification. The Journal of Applied Instructional Design, 10(2). https://dx.doi.org/10.51869/102/mr

13. Rushton, E., & Corrigan, S. (2021). Game-assisted assessment for broader adoption: Participatory design and game-based scaffolding. The Electronic Journal of e-Learning, 19(2), 71-87. https://files.eric.ed.gov/fulltext/EJ1296316.pdf

14. Sailer, M., & Homner, L. (2020). The gamification of learning: A meta-analysis. Educational Psychology Review, 32(1), 77-112. https://doi.org/10.1007/s10648-019-09498-w

15. Westera, W. (2019). Why and how serious games can become far more effective: Accommodating productive learning experiences, learner motivation and the monitoring of learning gains. Educational Technology & Society, 22(1), 59-69. https://drive.google.com/file/d/1yTQBRopaRgNo99__BVuGg1aoh_Utx3Ry/view

16. Bunch, J. C., Robinson, J. S., Edwards, M. C., & Antonenko, P. D. (2014). How a Serious Digital Game Affected Students' Animal Science and Mathematical Competence in Agricultural Education. Journal of Agricultural Education, 55(3), 57-71. doi: 10.5032/jae.2014.03057

*Curators Note: These are not open source, but the documents were found online for viewing:

1. Landers, R. N., Auer, E. M., Helms, A. B., Marin, S., & Armstrong, M. B. (2019). Gamification of adult learning: Gamifying employee training and development. In R. N. Landers (Ed.), *The Cambridge Handbook of Technology and Employee Behavior* (1st ed., pp. 271–295). Cambridge University Press. https://doi.org/10.1017/9781108649636.012

a. Referenced at: https://www.researchgate.net/profile/Richard-Landers-2/publication/331256286_Gamification_of_Adult_Learning_Gamifying_Employee_Training_and_Development/links/5ccca8f592851c4eab80fe5b/Gamification-of-Adult-Learning-Gamifying-Employee-Training-and-Development.pdf

Week 12. (April 4) Equity and belongingness in Science Education (Week led by Tulli Ariyaratne)

*Curators Notes follow Reference

1. Atske, S., & Perrin, rew. (n.d.). Home broadband adoption, computer ownership vary by race, ethnicity in the U.S. *Pew Research Center*. Retrieved January 26, 2022, from https://www.pewresearch.org/fact-tank/2021/07/16/home-broadband-adoption-computer-ownership-vary-by-race-ethnicity-in-the-u-s/

    a. Online instructional strategies are good. But if we do not have a desktop computer or home broadband, how shall we learn? We discuss equity in science. But equity in science should not only limit to school

2. PISA. (2021). What School Life Means for Students' Lives | OECD iLibrary. Sense of belonging at school | PISA 2018 Results (Volume III). Retrieved December 22, 2021, from https://www.oecd-ilibrary.org/sites/d69dc209-en/index.html?itemId=%2Fcontent%2Fcomponent%2Fd69dc209-en

    a. US high school students are not often compared with the other countries. But PISA (Programme for International Student Assessment) is a good arena for US students to perform their skills to the world.

3. Miller, E. (2021, March 1). For some black students, remote learning has offered a chance to thrive. *NPR*. https://www.npr.org/2021/03/01/963282430/for-some-black-students-remote-learning-has-offered-a-chance-to-thrive

    a. Unites States high school students complained that they feel less sense of belongingness in their high schools (According to PISA 2018 data). African American students prefer online learning better as it has less space for classroom bullying. Science teachers are a little reluctant to move their instructional strategies to an online platform. But this is an advantage.

4. Zhong, Q., Ariyaratne, T., Yang, J., Rahman, S., & Akerson, V. (2021). It's hard to focus on the content knowledge: Understanding a doctoral student instructor's emotional challenges of teaching science during the COVID-19 pandemic. In V. L. Akerson & I. S. Carter (Eds.), Science Education during the COVID-19 Pandemic: Tales from the Front Lines (pp. 93-116). ISTES Organization. https://www.istes.org/books/66b68668bf786c7bb1aff8fc6998c15f.pdf

    a. Do you ask your students to open their video cameras during your online class? We do not know what kind of hardship your students face in their homes. Some students babysit and some students do not have a quiet place in their home. One of our students (who never opened their video camera on zoom, later revealed that she was attending the class from her home toilet and that is the only quiet place that she can attend). Students come from different social and family backgrounds. So making them welcoming and included is always important. This is our own research and our publication.

5. Lederman, N. G., & Abell, S. K. (Eds.). (2014). *Handbook of research on science education, volume ii*. Routledge. https://doi.org/10.4324/9780203097267

a. Handbook of Research on Science Education is an essential book for all science educators. I am recommending you to read (well, you do not have enough time to read all these recommended chapters). But have a glance or read the topics, then you will at least understand some main concerns in Science Education in the USA. As an IU student, you can download it for free (try the below-given links if both didn't work, let me know, I will send you my PDF) https://doi-org.proxyiub.uits.iu.edu/10.4324/9780203097267 or https://tinyurl.com/2p8z9haw

b. Barton, A. C., Tan, E., & O'Nell, T. (2014). Science Education in Urban Context. In N. G. Lederman & S. K. Abell (Eds.), Handbook of Research on Science Education (Vol. II, pp. 246–265). essay, Routledge.

c. Buxton, C., & Lee, O. (2014). English Learners in Science Education. In N. G. Lederman & S. K. Abell (Eds.), Handbook of Research on Science Education (Vol. II, pp. 204–222). essay, Routledge.

d. Oliver, S. J., & Hodges, G. W. (2014). Rural Science Education: New Ideas, Redirections, and Broadened Definitions. In N. G. Lederman & S. K. Abell (Eds.), Handbook of Research on Science Education (Vol. II, pp. 266–283). essay, Routledge.

e. Scantlebury, K. (2014). Gender Matters; Building on the Past, Recognizing the Present, and Looking Toward the Future. In N. G. Lederman & S. K. Abell (Eds.), Handbook of Research on Science Education (Vol. II, pp. 187–203). essay, Routledge.

6. Wijenayaka, L. A., & Iqbal, S. S. (2021). Going virtual with practical chemistry amidst the COVID-19 pandemic lockdown: Significance, constraints and implications for future. *Asian Association of Open Universities Journal*, *16*(3), 255–270. https://doi.org/10.1108/AAOUJ-09-2021-0102

    a. Doing laboratories virtually is an impossible thing for many science learners. But this example comes from an island nation, Sri Lanka. The Open University of Sri Lanka (OUSL) is one of the top raked state universities which provides in-person and distance learning opportunities to Sri Lankan students for an affordable price. This researcher has introduced a resource called 'Virtual Chemistry Lab Space' (VCLS), which allows undergraduate students to virtually interact with their chemistry laboratories. This facility was offered to the learners who enrolled in practical chemistry courses at OUSL. The study indicates novelty within the Online and Distance Learning (ODL) system which facilitates students who are in rural parts of Sri Lanka who can not easily access the main campus or regional branches of OUSL located in main cities. https://www.emerald.com/insight/content/doi/10.1108/AAOUJ-09-2021-0102/full/html

7. Widarti, H. R., & Asrori, M. R. (2021). *The development of Android-based thin layer chromatography learning material with project-based learning*. 020007. https://doi.org/10.1063/5.0043359

    a. COVID-19 pandemic forced Indonesian vocational schools to shift to online instructions. Thin Layer Chromatography (TLC) is an expensive material to buy and it is an essential material for its laboratory activity. Due to the pandemic situation, this vocational school introduced android based platform to do TLC lab which is highly interactive and supports student-centered learning. Android-based TLC learning material with the PBL model for vocational learning is highly successful and is interactive. Online learning helps students to build good interaction among other learners and facilitates student-centered learning. The urgencies of online learning cover the equal distribution of education quality and also help to mitigate the educational resources. Less interactive learning materials and

representation methods are some of the main reasons for Chemistry to become an unpopular subject among the learners. These researchers address that problem during the pandemic. The Rhodamine-based materials are expensive to use and also the instructions went online. Hence the researchers used an android-based platform for students to develop their own thin layer chromatography (TLC) virtually. It supports online learning as well as affordable learning options. Also, online learning helps to develop good social interactions with other learners and create a student-centered learning. https://www.emerald.com/insight/content/doi/10.1108/AAOUJ-09-2021-0102/full/html

8. Pew Research Center. (2020, August 20). What U.S. religious groups think about science issues. Pew Research Center Science & Society. Retrieved January 6, 2022, from https://www.pewresearch.org/science/2015/10/22/science-and-religion/
    a. Science is contradicting religion for centuries. In some situations, religion discourages science learners and on the other hand, religious learners feel isolated in STEM. Understand the trend.

Videos

1. De Reya, M. (2019, November 10). How modern families increase social inequality - youtube. The Economist. Retrieved January 23, 2022, from https://www.youtube.com/watch?v=hSmAYUnZyxE
    a. College education does not only provide you with a paper qualification. It can be better for everything.

2. Omar Famau, A. (2022, January 10). Kili and Neema Paul: The Maasai tiktokers ... - youtube.com. BBC News Africa. Retrieved January 23, 2022, from https://www.youtube.com/watch?v=TMkRvZ9-Q7o

    a. At last a fun fact! This is not related to science but learning from something that you do not believe in. TikTok is an app to many people to kill time and procrastinate. But not to Kili and Neema. This African Maasai herdsman and his sister learn how to dance to Indian Bollywood songs and now they have so many followers. The world is open

Week 13. (April 11) Pros and Cons of Microlearning (Week led by Katie Dixon)

1. May 10, 2021, 10 microlearning challenges. Jeanellie Avelino, EdApp, https://www.edapp.com/blog/10-microlearning-challenges/

2. April 2018, The effectiveness of microlearning to improve students' learning ability. Mohammed, G.S., Wakil, K., Nawroly, S.S.M. https://www.researchgate.net/publication/324552176_The_Effectiveness_of_Microlearning_to_Improve_Students'_Learning_Ability

3. January 17, 2022, Microlearning. Valamis, https://www.valamis.com/hub/microlearning

4. December 1, 2020, Microlearning solves real-world l&d problems - 4 use cases. Anna Kelly, SAP Litmos, https://www.litmos.com/blog/articles/microlearning-solves-problems

5. February 11, 2019, The 4 potential pitfalls of microlearning. ReadyTech Marketing, http://blog.readytech.com/the-4-potential-pitfalls-of-microlearning

6. August, 2017, Microlearning, A Pedogogical Approach for Technology Integration. Emtinan Alquarishi, ResearchGate, https://www.researchgate.net/publication/319715909_Microlearning_A_Pedagogical_Approach_For_Technology_Integration

7. March 9, 2016, Pros and Cons of Microlearning. Jeff Cobb, Tagoras Video, VIDEO (5:42) https://tinyurl.com/wrmhp6up

8. May 6, 2021, Instant Microlearning Idea: Microlearning is not about short content. Vignettes Learning, VIDEO (1:08), https://youtu.be/EZAudHSQdp0

Week 14. (April 18) Dark Patterns in Instructional Design (Week led by Nelson Chavez)

*Curators Notes: Dark patterns in design are when the creators of certain websites, mobile applications, or other technological platforms try to coerce the user into experiences that the user may not be aware of or okay with. For example, websites that have disguised ads, hidden costs, or force decisions on users.

Scholarly Articles

1. Di Geronimo, L., Braz, L., Fregnan, E., Palomba, F., & Bacchelli, A. (2020). Ui dark patterns and where to find them: A study on mobile applications and user perception. Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems, 1–14. https://doi.org/10.1145/3313831.3376600

2. Karlsen, F. (2019). 13 Exploited or Engaged? Dark Game Design Patterns in Clicker Heroes, Faltin FarmVille 2, and World of Warcraft. Transgression in Games and Play, 219. Retrieved February 2, 2022, from https://kristiania.brage.unit.no/kristiania-xmlui/bitstream/handle/11250/2599952/Karlsen+Exploited+or+Engaged.pdf?sequence=1

3. Mildner, T., & Savino, G.-L. (2021). Ethical User Interfaces: Exploring the Effects of Dark Patterns on Facebook. Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems, 1–7. https://doi.org/10.1145/3411763.3451659

4. Waldman, A. E. (2020). Cognitive biases, dark patterns, and the 'privacy paradox.' Current Opinion in Psychology, 31, 105–109. https://doi.org/10.1016/j.copsyc.2019.08.025

5. *Note from Curator: Free from: https://digitalcommons.nyls.edu/cgi/viewcontent.cgi?article=2328&context=fac_articles_chapters

6. Zagal, J. P., Björk, S., & Lewis, C. (2013). Dark patterns in the design of games. In Foundations of Digital Games 2013. Retrieved February 2, 2022, from https://core.ac.uk/reader/1842607

Web Articles

1. *Dark patterns*. (n.d.). Retrieved February 2, 2022, from https://www.darkpatterns.org/

2. *'Dark patterns' in consumer data privacy garner policy attention*. (n.d.). Retrieved February 2, 2022, from https://news.bloomberglaw.com/privacy-and-data-security/dark-patterns-in-consumer-data-privacy-garner-policy-attention

3. *"Dark patterns" in user experience design manipulates consumers, says CGT research—Purdue Polytechnic Institute*. (n.d.). Retrieved February 2, 2022, from https://polytechnic.purdue.edu/newsroom/dark-patterns-user-experience-design-manipulates-consumers

4. *Home*. (n.d.). UXP2: Dark Patterns. Retrieved February 2, 2022, from https://darkpatterns.uxp2.com/

5. Kinnaird, Z. (2020, October 16). *Dark patterns powered by Machine Learning: An intelligent combination*. Medium. https://uxdesign.cc/dark-patterns-powered-by-machine-learning-an-intelligent-combination-f2804ed028ce

6. *Melissa smith: Intentionally unintended: redefining dark patterns at amuse ux conference*. (n.d.). Retrieved February 2, 2022, from https://www.youtube.com/watch?v=zaaPkGA2pBE

Week 15. (April 25) Micro credentials, Digital Badging, and the Future of Learning and Education (Week led by Belle Li)

1. Carey, K. L., & Stefaniak, J. E. (2018). An exploration of the utility of digital badging in higher education settings. Educational Technology Research and Development, 66(5), 1211–1229. https://doi.org/10.1007/s11423-018-9602-1

2. Clements, K., West, R. E., & Hunsaker, E. (2020). Getting started with open badges and open microcredentials. The International Review of Research in Open and Distributed Learning, 21(1), 153–171. https://doi.org/10.19173/irrodl.v21i1.4529

3. Credential clout: How higher ed can prepare for an evolving job market. (n.d.). Ellucian. Retrieved February 1, 2022, from https://www.ellucian.com/blog/importance-college-degree-vs-credentials

4. Ehlers, U.-D., & Kellermann, S. A. (2019). Future skills: The future of learning and higher education. Results of the International Future Skills Delphi Survey. Baden-Wurttemberg Cooperative State University. Retrieved February 1, 2022, from https://nextskills.files.wordpress.com/2019/05/2019-05-17-report-vs.15.pdf

5. Newby, T. J., & Cheng, Z. (2019). Instructional digital badges: Effective learning tools. Educational Technology Research and Development, 68(3), 1053–1067. https://doi.org/10.1007/s11423-019-09719-7

6. Susan Yoon, Emma Anderson, Joyce Lin, & Karen Elinich (2017). How augmented reality enables conceptual understanding of challenging science content. Educational Technology & Society, 20(1), 156-168. Retrieved February 1, 2022, from: https://www.researchgate.net/publication/312053926_How_Augmented_Reality_Enables_Conceptual_Understanding_of_Challenging_Science_Content

7. Wheelahan, L., & Moodie, G. (2021). Gig qualifications for the gig economy: Micro-credentials and the 'hungry mile.' Higher Education. https://doi.org/10.1007/s10734-021-00742-3