

Chapter 6

Conceptualising and Designing Self-Mapped Learning Pathways Courses to Encourage Learner Agency and Equity

Matt Crosslin

One of the more difficult issues related to agency in education is designing for equity for all learners. Learners enter into every course with unique learning goals, pre-existing knowledge, epistemological preferences, sociocultural contexts, and practical life constraints. Designing one course for this diverse array of factors can be overwhelming, especially when trying to distill all of these unique factors into one learning pathway. The concept of Self-Mapped Learning Pathways (SMLP) has recently emerged as a design methodology focused on encouraging learner agency and equity. The basic idea of SMLP design is to create a course that allows learners to create their own learning pathway when presented with the options of an instructor-led modality and a student-centered modality. Learners can follow either modality or mix the two as needed. This chapter will explore the basic theory behind SMLP as well as current research results, but the primary focus will be on how to critically conceptualize and practically design courses for encouraging learner agency and equity through SMLP.

Introduction

Self-Mapped Learning Pathways (SMLP) were initially conceptualized as a “dual-layer course” design created to encourage learners to move from following the instructor’s pre-determined pathway into a student-centered heutagogical learning pathway. The initial idea of a “dual-layer course” was re-imagined into a design methodology that creates two modalities in any given course. The foundational modality is a complete course pathway designed by the instructor to lead learners completely through the course content from beginning to end. The other modality is a self-determined heutagogical pathway that affords learners the freedom to map their own learning pathway. The key feature of this dual modality design is that learners can switch between modalities at any point in the course based on their needs, goals, or changing circumstances.

Where Did the Idea of Self-Mapping a Learning Pathway Come From?

The first version of SMLPs course came about in 2014 (Crosslin, 2016a) in a Massive Open Online Course (MOOC). MOOCs were initially conceived as learner-centered networked learning experiences in the form of free courses that were open for registration to anyone in the world with access to a computer and the Internet (Kovanović, Joksimović, Gašević, Siemens, & Hatala, 2015). In 2011, a new form of MOOC came to prominence that focused on following instructor-centered pathways (Kovanović, Joksimović, Gašević, Siemens, & Hatala, 2015).

SMLP started off as an attempt to create a dual-layer combination (Crosslin, 2014a) of the two MOOC forma, a course that had one layer for a standard instructor-focused modality, and another layer for a learner-centered modality. The main idea was that learners could choose either layer they wanted to start with and switch back and forth or mix and match as needed, while they progressed through the course (Crosslin, 2015b). The instructor-centered modality was there for those who were either new to the topic and needed a defined guide or, for various reasons, chose to follow a pre-defined pathway. The learner-centered modality was there for those that wanted to make their own pathway or wanted to explore the same topic from a different sociocultural or intersectional perspective.

While the response was very positive both from dual-layer course learners (Crosslin, 2018; Crosslin & Dellinger, 2015), as well as the instructors who tried or considered the dual-layer format in other contexts (Bali & Caines, 2018; Crosslin, Milikic, Dellinger, Jovic, & Breuer, 2019; Hall, 2017; Kilgore & Al-Freih, 2017), there were many important questions raised in discussion and feedback sessions (Crosslin, Dellinger, Joksimovic, Kovanovic, & Gašević, 2018; Dawson, Joksimovic, Kovanovic, Gašević, & Siemens, 2015; Rosé et al., 2015). Many learners wanted to know which modality is better (some felt that using the term “layers” implied one was better than the other). Some of the instructor-centered learning learners wanted to know why the learner-centered options were there, while some of the heutagogical-leaning learners wanted to know why the instructor-centered options were there (many of them even disagreed over whether the course was really instructor- or learner-centered (Crosslin, 2015a)). Several learners felt lost or overwhelmed trying to figure out where to go. Others wanted the course to have formalized avenues of engagement for learners, which were distinctly lacking in dual-layer designs (much of this comes down to personal perspective, as others such as Montero-Colbert, Delia Deckard, Stewart, Richard, and Nanan (2019) would have disagreed with this as they saw the dual-layer as having distinct pathways with formalized peer engagement).

This feedback led to several changes with the design model. The main change was that the concept of “dual-layer” was dropped. The new term “Self-Mapped Learning Pathways” (<https://edtechbooks.org/-RdMG>) was adopted to better reflect what learners were expected to do in these courses. Initially, the goal of the dual-layer course designers had been to push learners towards the learner-centered pathway, but feedback from learners indicated that many of them needed the instructor-centered pathway for a variety of reasons (e.g., time constraints, ease of use, busyness of life) (Crosslin, 2016a). Therefore, the idea that every choice is equally important was adopted (Crosslin, 2015c). To help facilitate that concept, the focus of the course was moved away from complex course maps (Crosslin, 2014c) to neutral zones that described multiple options from which the learner could choose (Crosslin, 2014b).

SMLP Learning Experience Design

Designing SMLP learning experiences can really begin at any stage. One good place to start is by creating a shell for a neutral zone, and then moving quickly to the instructor-centered modality (because that typically already exists in many courses). Additionally, the process of deconstructing and critically examining the instructor-led modality to create a learner-centered modality can be helpful (and enjoyable).

One thing to keep in mind is that courses within formal systems will have limitations or requirements imposed by that formal system. SMLP is one possible design methodology for helping learners take agency over their own learning, but when it occurs within formal structures, adjustments might have to be made. For example, formal education typically requires certain topics to be covered, or assignments to be graded, or certifications to be awarded due to systemic rules. Adjustments to SMLP to meet these requirements are to be expected. The concepts covered in this chapter are ideals that some can fully implement, but many instructors might have to pick and choose which ones apply depending on systemic limitations.

Neutral Zones - The Learning Experience Hub

The temptation for many will be to use an institutional Learning Management System (LMS) to create the main course hub. While this may be the easiest route, LMSs are really designed from an instructor-centered mindset and should be reserved for that modality. Similarly, the course hub really should not reside on a social networking website because the social nature creates a bias for student-centered learning (and not all learners are ready for that).

One recommendation is a self-hosted website running something like WordPress. A Neutral Zone is intended as a place where both modalities are presented, where options for self-mapped learning will be shared, and where learner examples will be featured (with the permission of learners, and heavy examination by the instructor as to why they share the ones they do share). Something like WordPress provides tools to make all of this happen, but there are others that work just as well. Figure 1 shows an example of a Neutral Zone with pathway options visualized as a stream or a garden. On the left side is the description of options, on the right is the list of options for the "Stream" (instructor-centered) pathway.

Figure 1

Example Neutral Zone

Week 3 Competencies

Competency 7: Reflects on triggering events and how they can be used in education

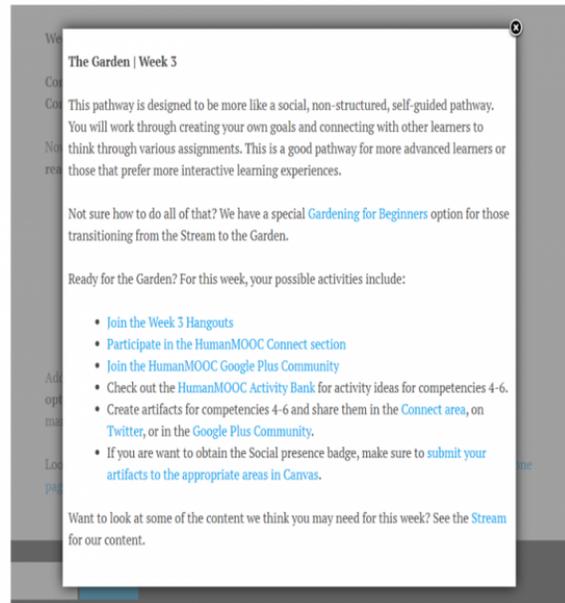
Competency 8: Creates an assignment for course that consists of a peer review component

Now it is time to choose either the *Garden* and *Stream* (or both). Click on the images below to read what that pathway will look like for Week 3:



Additionally, for those that are not sure about the *Garden* pathway, you can choose the **middle option** to help you dip your toe into the idea of connected learning (see the gray question mark image above).

Looking to catch up on Week 0, 1, or 2? See the [Week 0 Neutral Zone page](#), the [Week 1 Neutral Zone page](#), or the [Week 2 Neutral Zone page](#).



Regardless of what tool is used, the goal for creating a Neutral Zone is twofold: to humanize the course by promoting presence (see <https://humanmooc.pressbooks.com/>), and to help learners constantly examine their mapping choices. Here are some resources to read more about the relationship between learner choices and neutral zones:

- Designing a Neutral Zone in Dual-Layer (Customizable Modality) MOOCs (Crosslin, 2014a)
- Digging Into What 'Choice' is in Customizable Modality/Dual-Layer (Crosslin, 2015b)
- Evolution of the Dual-Layer/Customizable Pathways Design (Crosslin, 2016b)
- Every Choice is Awesome. Every Path is Cool When You're in #HumanMOOC (Crosslin, 2015c)

The Instructor-Centered Modality Design Phase

Designing the instructor-centered modality probably will be the most familiar aspect for many. Several resources exist to help create a high-quality learning pathway for following what the instructor thinks that learners should do to master the topic. There is no need to repeat these concepts here. However, there are several issues to highlight in order to make this modality as easy to use as possible for the most learners:

- **Accessibility:** everything should follow all accessibility requirements. This means captioning for videos, alt tags for images, screen reader testing, good color contrast... all of the standards (see <https://edtechbooks.org/-TIE>).
- **Course Alignment:** the instructor-centered modality will need to have well-written goals, objectives, competencies, etc. (see <https://edtechbooks.org/-mbUe>). However, remember that these standards are for those that follow the instructor, so don't become so attached to them that they become the power center of the course.
- **Micro-Content:** When creating content, keep in mind how it will all connect to learners who are creating their own pathway:
 1. Since learners will possibly come in and out of the content and activities, creating each part as stand-alone micro-content (Semington, 2017) will help learners as they map their own pathway.

2. However, make sure that any learner who stays on the instructor-led pathway doesn't get lost. Make sure there is flow, deep thought, reflection, and other design considerations that help learners move through content smoothly.
 3. Examine all content and activities for bias, oppressive power dynamics, and missed opportunities to examine intersectionality. Invite learners to do the same to help improve course quality.
- **Assessment:** Assessment can be complicated in SMLP courses. This is partly because grading is a complicated and problematic concept in general. The main reason assessment is complicated in SMLP courses is because any grading plans would have to assess work across multiple varied self-mapped pathways. Ideally, in place of grades, instructors could discuss pathway artifacts in an interactive format - learners would submit early drafts of work, instructors would then comment, learners would ask questions and adjust, and the process would repeat until both are satisfied with the final artifact. If possible, learners could also be allowed to work with the instructor to create their own assignments. This system may require some type of approval and oversight at the program or system level, but this possible interactive plan is not unheard of in education. However, since many institutions require instructor to give grades, assessment does need to be addressed in those situations. When grading is required, one method that helps is to first create an ideal grading plan for the instructor-centered pathway. Then consider how that grading plan would need to be deconstructed to make it work for the learner-centered modality as well as the instructor-centered modality. Focus on the core competency that learners need to demonstrate rather than specific assignment-based details like word count requirements and standardized test questions. This idea will be explored more in the next section.

Keep in mind that learners are following this pathway by choice when they are on it, not by being controlled by the instructor. Make sure that all design choices reflect choice and not control. Having learners review designs for the instructor-centered modality might be a good way to examine content for bias as well.

The Learner-Centered Modality Design Phase

While some may see the learner-centered modality as the easiest one to design, the truth is that it requires a lot of effort to not codify existing biases into the design - especially for those with more power and privilege that enjoy the freedoms that learner-centered options can afford them. Rather than looking at this modality as one that just sets learners free to do as they like, we should look at it as the modality that ties together many learner pathway options. This part is more of a fuzzy area, but there are a few suggestions for this modality below.

- **Deconstructing "Instructor-Led":** In order to form some guidelines / scaffolding / suggestions for the learner-centered modality, one recommendation is to take any course goals, objectives, and standards and break those down to the smallest parts possible. For example, take a performance objective, remove the conditions and criteria, and all that is left is the main part needed for learners: the behavior or idea that learners are to study. Turn this into a very open-ended competency and let it serve as a guide or idea for the week / module in the Neutral Zone. Let learners deconstruct it even more if they don't connect with it or think it works for them.
- **Communication:** One of the important aspects to analyze in designing the learner-centered modality is the ways that modality options are communicated. Those with educational backgrounds can too easily slip back into communicating definitive instructions that make all

learners feel like they have to follow them. Language can also communicate unexamined power dynamics and intersections that stifle pathway mapping rather than help.

- **Flexibility and Choice:** The key feature of this modality is to add flexibility and choice. Some learners will be ready for this, others will not. Course design will need to walk a fine line between giving some ideas or guidance to help those who aren't quite ready, while making room for those who are ready. Much of this will happen in the Neutral Zone. Some learners have found the concept of an activity bank of assignment suggestions helpful, especially if instructors get permission to include examples of pathways different learners have created in past courses.
- **Assessment:** Typically, the best methodology to approach grading in SMLP courses is ungrading (see Bali, 2019a; Fasheh, 2000; and Stommel, 2020) with feedback and discussions of outcomes. Journaling, portfolios, and other forms of authentic assessment can be helpful with this. Learners will probably also more than likely need to take partial or total control of creating guidelines for assessment / feedback / grades. Also, any documentation of pathways maps can help (see next section). The main difficulty in this area is that assessment of any kind will need to cover both the instructor-led modality and the learner-centered modality (and all of the options this creates). Qualitative rubrics with open-ended criteria could help here, especially in the context of institutions that require instructors to be the ones to give grades. Qualitative rubrics in the context of SMLP would not focus too much on the details of what learners did for assessment (like word counts, and paper structures), but on how the learner provided proof that they have learned or accomplished something. It wouldn't be a list of micro-managed point values, but a chart with open sections to provide thoughts and feedback. There are also other ways to think about documenting the learning process in SMLP. For one example, see "Documenting Customizable Pathways" (Hall, 2017).

The Learning Pathway Map

The main activity for most learners should be the creation of a learning pathway map. This, at a minimum, would contain a description of what they plan to do to learn the topic, what resources they will need to learn, and how they will prove they have learned what they say they have. It may be a copy of the instructor-centered pathway, a mixture of the two modalities, or something else. The key is for learners to engage with the determination of what they will learn, as this is the core of heutagogy.

However, since learners may find it difficult to plan too much in advance, initial mapping should focus on general goals for the entire learning experience. Weekly (or module-based) focused mapping activities can help work out the specifics and details of learning maps. Be sure to make space for initial mapping at the beginning of class, while also including weekly time to focus, revise, and reflect on specific mapping choices.

Keeping in mind that these maps are not rigid, learners can expect to change their minds as they follow their own map. This level of agency and control can be daunting for some learners that are not used to it, so instructors will need to exercise patience, encouragement, and understanding as learners work through the process. Instructors should probably take notes about what does and doesn't work in their role as guide and encourager throughout each offering of their learning experience.

There are a wide variety of ways to accomplish the mapping of individual learning pathways. These will generally involve some form of technology. This could be as basic as a pencil or paper, digitally

supported through a WordPress blog or Word document, or a combination of technologies like mind maps. If online technologies are utilized, please keep in mind that there are pros and cons to every service. Technology is not neutral; there are contexts of power dynamics, biases, and privacy concerns built into every single tool that need to be examined (see McMillan Cottom, 2019). Many technology companies engage in oppressive surveillance techniques that affect different sociocultural intersections to different levels of severity (Gilliard, 2019; Noble, 2018; Watters, 2019). Learners should be fully informed of every issue that could possibly arise from using data generating and collecting tools online, as well as options for opting out.

For one idea on how to use various tools to map pathways, see “Creating a Self-Mapped Learning Pathway” (Crosslin, 2017). Note that the tool in that example is gone, highlighting the precarious nature of using technology like this. However, the ideas within the post can still be implemented across a wide range of tools.

Instructors can also experiment with different ways to present mapping options and the neutral zone. These new tools will also possibly introduce accessibility issues in addition to privacy and power dynamic concerns, so please make sure to consider these aspects and communicate issues clearly to learners. For an example of one idea that utilizes H5P and Twine micro-lessons, see “Building a Self-Mapped Learning Pathways Micro-Lesson: H5P vs Twine” (Crosslin, 2019).

Reflection and Analysis

In conjunction with the mapping activity, learners should be encouraged to reflect on why they made the choices they made: why they chose the options they did, why they followed their map the way they did and why they made the changes they did. Encourage them to reflect on power dynamics, intersectionality, and sociocultural factors that impact on their learning.

In order to not overwhelm learners, make sure there is time within the class schedule to reflect. There could even be three levels for the final reflection: one level for themselves, one level to prove to others that they learned what they say they did, and a final level that could be shared with other learners (with permission, of course). The first level can be wide, lengthy, and as deep as needed, since it would be primarily for the learner themselves. The next level could be based on competencies, goals, course activities, and other contextual requirements (like institutional grading requirements). The third level of reflection could theoretically be gathered in a repository to help future learners in their learning pathways mapping. If different learners reflect on the various intersections in their life and how that affects their learning pathway, those with similar intersecting aspects could find guidance for mapping their own pathway. Seeing how other learners like themselves navigated the course previously to explore something outside of the average pathway could help encourage others to make these choices as well.

SMLP and Equity

As this chapter is practical in nature, examination of important mindsets critical to implementing SMLP equitably cannot be addressed fully. However, SMLP was conceptualized to address some concerns raised by critical pedagogy (see Freire, 1996 and Hooks, 1994 for more about critical pedagogy). Therefore, some of the core social justice mindsets that are needed to empower heutagogical pathway creation need to be noted. These include:

- **Allow each learner to center their unique intersectionality.** Intersectionality is a term that was coined by Crenshaw (1989) as a critique of power dynamics that ignored the unique oppression of black women. Each learner will have a unique intersection of sociocultural characteristics - SMLP works best when each learner can center their unique intersection rather than those of the instructors or other learners. Indigenous Pedagogy brings an important perspective to this by seeing each learner as a “potential knowledge-keeper and teacher” based on the Indigenous value that “all members of a community have knowledge to share” (Restoule & Chaw-win-is, 2017, p.12).
- **Avoid the temptation to re-center dominant identities.** Mehran (2019) points out how white males can often reframe and re-center intersectionality back on themselves. Instructors of any sociocultural background can possibly do this as the one in charge of the course, so instructors must avoid re-centering themselves in SMLP course design.
- **Because of historic educational power imbalances, learners may not be aware of their capabilities.** Bali (2019b) makes an important point about Capability Theory that can guide the development of SMLP courses: “one’s surrounding environment can limit someone’s capacity to practice what they are capable of... we must recognize that marginalized people, when given agency and choice, may not be able, at first, to make good choices because of the hegemony of the dominant worldview narrowing their vision on what is possible for them” (para. 14). In other words, learners may need help and encouragement to step outside of the single linear pathway that they are most accustomed to from their past.
- **Don't forget to keep all aspects of the SMLP course accessible.** Because SMLP courses can be seen as "experimental," the temptation exists to jump in and not design for accessibility. Make sure this does not happen. See Thurber and Bandy (2018) for a good summary of accessibility and design in online courses.

Conclusion

This chapter set out to examine some of the practical ways to create a course that implements the heutagogical goal of learner agency. Because many people are typically not taught how to be a learner, the SMLP design methodology was presented as one method to facilitate a course that allows learners to map their own pathway as a means of achieving agency. Learners are given the option to choose from a pre-determined instructor-centered pathway, or to create a pathway of their choosing. This includes mixing in parts of the instructor pathway if they so choose. Giving learners these options allows them to center their unique intersectionality while also individualizing the amount of support they need from the instructor based on their personal capabilities. But because the choice is in the learners' hands, they retain agency over exactly what they need.

While there has been some research conducted on SMLP courses, much is still unknown about how learners navigate these spaces. Additionally, technology tools that allow for mapping - while also protecting privacy - are few and far between. Future work in the SMLP realm will include research into what course designs and mindsets encourage more learners to step away from complete reliance on the instructor in the course. Additionally, work continues to find or create tools that will allow learners to create a learning pathway map, follow and adjust that map, and then reflect on the entire process at the end. Hopefully this chapter has served as a springboard to using SMLP to integrate heutagogy into the learning process.

References

- Bali, M. (2019, March 23). Reflections on ungrading for the 4th time [Blog post]. <https://edtechbooks.org/-ircB>
- Bali, M. (2019, December 31). Republishing: My journey to understanding intersectionality [Blog post]. <https://edtechbooks.org/-HCfg>
- Bali, M. & Caines, A. (2018). A call for promoting ownership, equity, and agency in faculty development via connected learning. *International Journal of Educational Technology in Higher Education*, 15(46). <https://edtechbooks.org/-uap>
- Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory, and antiracist politics. *University of Chicago Legal Forum*, 1989(1), 139-167.
- Crosslin, M. (2014a, May 4). Designing a dual layer cMOOC/xMOOC [Blog post]. <https://edtechbooks.org/-NUsw>
- Crosslin, M. (2014b, September 23). Designing a neutral zone in dual-layer (customizable modality) MOOCs [Blog post]. <https://edtechbooks.org/-eRL>
- Crosslin, M. (2014c, September 26). Visual flow of learner tools in the dual layer MOOC [Blog post]. <https://edtechbooks.org/-mHEf>
- Crosslin, M. (2015a, January 20). The mirage of measurable success [Blog post]. <https://edtechbooks.org/-DhV>
- Crosslin, M. (2015b, October 1). Digging into what “choice” is in customizable modality/dual-layer [Blog post]. <https://edtechbooks.org/-pIZ>
- Crosslin, M. (2015c, December 28). Every choice is awesome. Every path is cool when you’re in #HumanMOOC [Blog post]. <https://edtechbooks.org/-SSj>
- Crosslin, M. (2016a). Customizable modality pathway learning design: Exploring personalized learning choices through a lens of self-regulated learning (Doctoral dissertation). University of North Texas, Denton, TX.
- Crosslin, M. (2016b, June 14). Evolution of the dual-layer/customizable pathways design MOOC [Blog post]. <https://edtechbooks.org/-ggaP>
- Crosslin, M. (2017, March 28). Creating a self-mapped learning pathway [Blog post]. <https://edtechbooks.org/-GxiB>
- Crosslin, M. (2018). Exploring self-regulated learning choices in a customisable learning pathway MOOC. *Australasian Journal of Educational Technology*, 34(1), 131-144.
- Crosslin, M. (2019, September 4). Building a self-mapped learning pathways micro-lesson: H5P vs Twine [Blog post]. <https://edtechbooks.org/-Xkhj>

- Crosslin, M., & Dellinger, J. T. (2015). Lessons learned while designing and implementing a multiple pathways xMOOC + cMOOC. In D. Slykhuis, & G. Marks (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2015* (pp. 250-255). Chesapeake, VA: Association for the Advancement of Computing in Education.
- Crosslin, M., Dellinger, J. T., Joksimovic, S., Kovanovic, V., & Gašević, D. (2018). Customizable modalities for individualized learning: Examining patterns of engagement in dual-layer MOOCs. *Online Learning Journal*, 22(1). 19-38.
- Crosslin, M., Milikic, N., Dellinger, J. T., Jovic, I., & Breuer, K. (2019). Determining learning pathway choices utilizing process mining analysis on click stream data in a traditional college course. *Companion Proceedings of the 9th International Learning Analytics and Knowledge Conference*.
- Dawson, S., Joksimovic, S., Kovanovic, V., Gašević, D., & Siemens, G. (2015). Recognising learner autonomy: Lessons and reflections from a joint x/c MOOC. *Proceedings of Higher Education Research and Development Society of Australasia 2015*, Melbourne, 117-129.
- Fasheh, M. (2000, September). The trouble with knowledge. Presented at EXPO 2000: A Global Dialogue on "Building Learning Societies - Knowledge, Information and Human Development," Hanover, Germany. <https://edtechbooks.org/-KvV>
- Freire, P. (1996). *Pedagogy of the oppressed* (revised). Continuum.
- Gilliard, C. (2019). Caught in the spotlight. *Urban Omnibus*. <https://edtechbooks.org/-kyIj>
- Hall, L. A. (2017, April 3). Dual pathways in online learning [Blog post]. <https://edtechbooks.org/-egeQ>
- Hooks, b. (1994). *Teaching to transgress: Education as the practice of freedom.*: Routledge.
- Kilgore, W., & Al-Freih, M. (2017). MOOCs as an innovative pedagogical design laboratory. *International Journal on Innovations in Online Education*, 1(1).
- Kovanović, V., Joksimović, S., Gašević, D., Siemens, G., & Hatala, M. (2015). What public media reveals about MOOCs: A systematic analysis of news reports. *British Journal of Educational Technology*. 46(3), 510-527.
- McMillan Cottom, T. (2019, August 26). Rethinking the context of edtech. *EducauseReview* 54(3). <https://edtechbooks.org/-PeuD>
- Mehran, P. (2019, December 22). Intersectionality: Not a term to recenter whiteness [Blog post]. <https://edtechbooks.org/-xmmks>
- Montero-Colbert, A., Delia Deckard, N., Stewart, B., Richard, S., & Nanan, A. (2019). Learning together in public and private: Exploring learner interactions and engagement in a blended platform MOOC environment. *Current Issues in Emerging eLearning*, 6(1), pp. 20-41.
- Noble, S. U. (2018). *Algorithms of oppression: How search engines reinforce racism*. NYU Press.
- Restoule, J. P. & Chaw-win-is. (2017, October). Old ways are the new way forward: How Indigenous pedagogy can benefit everyone. The Canadian Commission for UNESCO's IdeaLab.

<https://edtechbooks.org/-rEj>

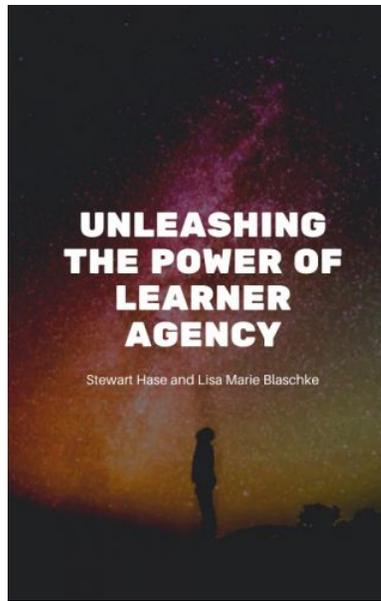
Rosé, C. P., Ferschke, O., Tomar, G., Yang, D., Howley, I., Aleven, V., Siemens, G., Crosslin, M., Gasevic, D., & Baker, R. (2015). Challenges and opportunities of dual-layer MOOCs: Reflections from an edX deployment study. *Proceedings of the 11th International Conference on Computer Supported Collaborative Learning (CSCL 2015)*. Gothenburg, Sweden.

Semingson, P. (2017, August 17). Engaging non-traditional students with (mobile-compatible) microlearning [Blog post]. Retrieved from <https://edtechbooks.org/-wLh>

Stommel, J. (2020, February 6). Ungrading: a FAQ. <https://edtechbooks.org/-PSeP>

Thurber, A.& Bandy, J. (2018). Creating Accessible Learning Environments. <https://edtechbooks.org/-Qqtf>

Watters, A. (2019, December 31). The 100 worst ed-tech debacles of the decade [Blog post]. <https://edtechbooks.org/-BXTX>



Crosslin, M. (2021). Conceptualising and Designing Self-Mapped Learning Pathways Courses to Encourage Learner Agency and Equity. In S. Hase & L. M. Blaschke (Eds.), *Unleashing the Power of Learner Agency*. EdTech Books.
<https://edtechbooks.org/up/smp>