

EDE 484A
Digitally-Rich Teaching and Learning in K-12 Schools
(08/25/18)

Fall 2018

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Contents:

[Instructor's Contact Information and Availability](#)

[Brief Course Description](#)

[Essential Questions Informing the Course](#)

[Course Goals and Desired Results](#)

[Key Assessments and Long Term Projects](#)

[Key Design Elements](#)

[Course Learning Modules](#)

[Course Requirements and Expectations](#)

[Technology Requirements](#)

[Learning Assessment and Grading](#)

Lead Instructor's Contact Information and Availability

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Dave Miller's virtual office hours: by appointment

Class meeting time: Thursdays, 4:50-7:30 pm (NOTE: several of these class meetings will be substituted with a synchronous online session or asynchronous online work – see Course Schedule for details)

Brief Course Description

This course's main goals are to empower participants to appreciate the transformative potential of digital technologies for learning and teaching, and to use that potential to design and implement effective "digitally-rich" learning experiences for their K-12 students. We have operationally defined *digitally-rich teaching and learning* (DRTL hereafter) as creating student-centered learning activities that take full advantage of the learning opportunities offered by a combination of technologies leveraging digital learning, including most notably the use of personal computing devices (such as tablets and laptops), a learning management system (LMS), specialized software and apps, and a variety of digital resources.

The course will focus in particular on how digital tools and other resources can be used to enhance teaching practices and students' learning experiences in the following three areas: (a) assessment, (b) conveying content, and (c) promoting collaborative learning.

The course will also begin to explore the implications for K-12 schools of a coordinated and sustained use of DRTL in the context of district-wide efforts – often referred to as “digital conversion.”

Throughout the course, students will engage in a series of learning activities including both in-class and online “digitally-rich” components, purposefully designed to enable students to “experience as learners” specific digital tools, resources, and practices. Explicit reflections on these experiences (both in class and online) will take place in parallel to enable students to generalize from these concrete experiences and consider possible applications for their own teaching practice. To inform these reflections, students will also revisit some fundamental principles of learning, motivation, assessment, pedagogy, and instructional design, and explore their implications for “digitally-rich” instructional contexts.

Students will also engage in some supported “experiences as teachers,” where they can begin to put into practice what they are learning, while benefitting from feedback from their classmates as well as the course instructor and structured reflections on the significance and implications of these experiences for their future teaching.

This course is offered as a hybrid-online course, so as to enable students to personally experience several different types of synchronous and online learning activities outside of class, and how they can be integrated with in-class and other face-to-face activities. Blackboard, the LMS adopted by the University of Rochester, will be used as the “class LMS”. The time slot of Thursday 4:50-7:30 pm should still be reserved for class activities – although not all of these activities will take place face-to-face in LeChase Hall.

The course is designed to be taken in conjunction with a year-long Practicum on Digitally-Rich Teaching. As such, the course will provide the opportunity to set up for key Practicum activities and share some of the early experiences. However, the Practicum will extend beyond the duration of the course, to provide more flexibility for the implementation of some required DRTL activities – including the innovative “DRTL unit” planned as part of this course.

No prior experience with online learning or instructional technology, either as a student or a teacher, is required to participate in this course.

Essential Questions Informing the Course

The course is informed by the following overarching essential question: ***What does it mean and what does it take to engage in DRTL successfully in K-12 schools?***

Specific learning modules in the course have been informed by the following more specific questions:

- *What may DRTL look like in K12 schools, and what value can it add?*
- *What principles should inform the design and implementation of effective DRTL activities?*
- *How can we leverage digital tools to enhance assessment practices?*

- *How can we leverage multi-media and digital technologies to best convey content?*
- *How can we promote and support collaborative learning using digital technologies?*
- *How can we design DRTL instructional units that leverage how people learn best?*
- *What is going on in terms of district-wide K-12 digital initiatives, and what implications could these initiatives have?*
- *How is your teaching practice going to be affected from what learned in this course?*

Course Goals and Desired Results

Informed by the previous considerations, the course has been designed to **empower students to (a) come to appreciate the transformative potential of *Digitally-Rich Teaching and Learning (DRTL)* and (b) design and implement more effective “digitally-rich” learning experiences for their K-12 students.**

More specifically, by the end of the course, students will be able to:

1. Appreciate the implications for DRTL of fundamental research-based principles within each of the following areas:
 - a) Motivation (*so as to design DRTL experiences that can support students’ sustained attention and engagement in a technology-rich classroom environment as well as when they work independently online*)
 - b) How people learn best, and implications for teaching (*so as to be able to design DRTL experiences that are informed by worthwhile learning goals and that truly engage students in meaningful and effective ways*)
 - c) Instructional design (*so as to be able to design DRTL experiences that can effectively lead to specific desired outcomes*)
2. Appreciate the potential benefits, challenges and implications of engaging in current district-wide K12 Digital initiatives (*so as to be able to better appreciate DRTL’s transformative potential and the conditions necessary for that potential to be realized*)
3. Enhance their assessment practices by using selected digital tools to:
 - a. elicit students’ prior knowledge
 - b. provide students with multiple ways to demonstrate their learning
 - c. collect and analyze assessment data that can both support student learning and inform future instruction
 - d. facilitate grading and reporting of assessment data.

(*so as to design more effective DRTL experiences consistent with a UbD approach and constructivist learning principles*)

4. Have their students benefit from high-quality and diverse multi-media content – both in class and online – by being able to:
 - a. Select appropriate digital resources among “published” one
 - b. Create new digital content specific their lessons
 - c. Empower students to make the best use of the digital content provided*(so as to design more effective DRTL experiences by leveraging the potential of multi-media)*

5. Better promote and support their students’ collaborative learning by being able to use selected digital tools to:
 - a. Share student work (both in class and online)
 - b. Facilitate discussions (both in class and online)
 - c. Structure and support group work
 - d. Create a supportive learning community*(so as to design more effective DRTL experiences consistent with social-constructivist learning principles)*

6. Design DRTL instructional units informed by an *Understanding by Design (UbD)* approach as well as by the instructional practices about digitally-rich assessment, collaborative learning and conveying content learned in the course *(so as to be able to design high quality DRTL activities for their students that meet ambitious learning goals)*

7. Appreciate the value of an iterative and collaborative approach to instructional design *(so as to continue to improve their design of DRTL experiences and units overtime)*

NOTE: Given these goals, this course addresses to some extent all of the five target competencies of the Advanced Certificate in Digitally-Rich Teaching in K-12 Schools:

1. *Gaining a nuanced appreciation of the potential and limitations of “digitally-rich” learning.*
2. *Developing foundational knowledge in the areas of motivation, learning, teaching and instructional design, as needed to inform the design of high-quality “digitally-rich” learning experiences for diverse learners.*
3. *Achieving awareness of and proficiency in using a rich set of online tools, technologies, resources and best practices for enhancing teaching in K-12 schools.*
4. *Achieving proficiency in designing and implementing high-quality “digitally-rich” learning experiences for K-12 students.*
5. *Learning how to evaluate “digitally-rich” learning experiences to improve future practice.*

Key Assessments and Long-Term Projects

- A. DRTL Project: Re-designing a DRTL “unit” for one’s students** (assessing course goals #3-6): As a culminating performance assessment for the course, each student will identify an existing instructional unit for one of their current/future classes on a topic of their choice, and “redesign” it by infusing technology so as to more

effectively achieve its learning goals, building on what learned in the course. Each student will work independently on this project, but with the help of a *Peer Group* (consisting of other students in the course specializing in similar subjects/age levels) to provide feedback.

This long-term project will be scaffolded through assignments taking place in each Learning Module of the course as follows:

1. (Module 1-2) Identify the unit and “reconstruct” its current design using a UbD template (*also assessing goal 1.c*)
2. (Module 2) Review and revise the unit’s essential question and learning goals (*also assessing goals 1.a+1.b*)
3. (Module 3) Review and redesign assessments – both summative and formative (using technology as most appropriate) (*also assessing goal 3*)
4. (Module 4) Review and enhance the “content” provided to students – both in class and online (using technology as most appropriate) (*also assessing goal 4*)
5. (Module 5) Review and revise the unit’s learning activities to maximize collaborative learning (using technology as most appropriate) (*also assessing goal 5*)
6. (Module 6) Final review of and improvements to the redesigned unit – possibly also to “move up” in SAMR level (*also assessing goal 7*)

B. DRTL Journals and Final Reflection (assessing course goals #1-5+7): At the end of each of the course modules (as described in a later section), each participant will be asked to record his/her main takeaways about the *essential question* informing the module as part of an electronic journal maintained in Blackboard. At the end of the course, each participant will also write a Final Reflection Paper, where they will synthesize and reflect on what they learned in the course as a whole, using their journals both as evidence and as a means to help their reflection.

NOTE: *Assessment of some of the course goals will also continue through the K-12 Digitally-Rich Practicum associated with this course, although it will not affect the grade for this course.*

Key Design Elements

As mentioned earlier, we believe it is important to engage teachers in “experiences as learners” of any innovative instructional approach they are asked to adopt. Therefore, this course was purposefully designed to “model” a variety of DRTL practices that teachers could consider using in their own classes. So, as students in this course will learn about specific issues, principles and digital tools, we will make full use of many different DRTL activities – both in class and online – and reflect on these experiences afterwards. These reflections will aim to identify not only the extent to which these activities were successful in promoting learning, but also the diverse reactions of individual learners to the experience and some key instructional decisions involved in designing the experience.

The literature on learning complex skills/practices (such as teaching – whether face-to-face, online, or in technology-rich environments) suggests that individuals can learn such skills best by engaging in the following sequence of experiences:

- a. Observing an expert engaged in the practice (possibly with the opportunity to ask questions about what is taking place and why).
- b. Participating in limited ways (“legitimate peripheral participation”) in the performance of the targeted practice in authentic contexts under the guidance of an expert.
- c. Engaging in the targeted practice independently, yet still benefiting from some support and feedback.

Learning opportunities for “observing expert practice” will be offered in this course in a few complementary ways:

- Through “DRTL experiences as learners” within the course, where the instructors will model the use of specific digital tools, resources or practices in authentic learning experiences for the participants – followed by reflections on those experiences.
- By having teachers who have tried out DRTL activities with their students share their experiences with the class as “virtual guest speakers”, joining the class via Zoom.
- By observing classroom teachers engaging in DRTL with their students as part of the Practicum associated with this course – followed by debriefing sessions.

Given the constraints of a semester-long course, we are limited with respect to the extent we will be able to implement the other two components of this model. However, as described earlier, we have designed a major “scaffolded experience as teachers” as part of this course – the DRTL Project described above. Most importantly, some of the experiences conducted as part of the Practicum are intended to play this role.

Course Learning Modules

NOTE: Some of these modules overlap, as shown in a separate “course schedule” document

MODULE 1: Setting the Stage (3+weeks)

Essential question: What may DRTL look like in K12 schools, and what value could it add?

This first module is intended to develop expectations and motivation for the entire course, as well as build the foundations for its “learning community”. Before ever meeting face-to-face, participants will engage in a set of online activities designed mainly to elicit their prior experiences and conceptions of online and digitally-rich learning, to introduce information about the course, and to get them to know each other. This preliminary assignment is also meant to provide participants with a fully-online learning experience, as well as a first example of “flipped classroom”. To develop more shared images of high-quality DRTL activities, participants will have multiple opportunities to share their experiences with digital learning and review examples of other DRTL lessons; most importantly, however, they will engage together in a first “DRTL experience as learners” – the *Pet Activity* – in their first F2F class. *Understanding by Design (UbD)* as an

approach to instructional design will be introduced/revisited as the instructors share how they approached the design of this DRTL activity. The SAMR model will also be introduced as a conceptual tool to examine DRTL experiences from the perspective of the use made of technology. Course expectations, including the long-term project of redesigning a DRTL unit, the focus for each learning module and connections with the concurrent Practicum, will also be introduced in this beginning module, so participants know what to expect and can plan accordingly. This first module (as will be the case for every other module in the course) will conclude with a journal entry where students are asked to synthesize their main take-aways about the essential question informing the module.

MODULE 2: Principles Informing Effective DRTL Units (2 weeks)

Essential question: What principles should inform the design and implementation of effective DRTL experiences?

The potential impact of a DRTL experience on student learning will greatly depend on the overall approach to learning and instruction that informs it. High-quality DRTL experiences need to be student-centered, focus on “big ideas” in a field, involve activities at the high end of Bloom taxonomy, and be meaningful and engaging for the specific group of students involved. In this module, participants will revisit fundamental principles about motivation, learning and pedagogy with a focus on deriving implications for digitally-rich teaching that can inform the rest of their experiences in the course, as well as their redesign of a unit for the DRTL Project. They will do so by engaging in a carefully designed online asynchronous module that will make use of different multi-media readings about the theories students are asked to revisit, while also engaging students in a variety of assignments designed to make connections with previous experiences in the course as well as their independent project – thus also providing an opportunity to “experience as learners” a fully online asynchronous module and then reflecting on this experience. As part of this module, students will also identify the unit they want to focus on for their Independent Project, reconstruct its current design using a UbD unit plan format, and develop a revised list of learning goals that will inform their “redesign”.

MODULE 3: Digitally-rich Assessment Practices (2 weeks)

Essential question: How can we leverage digital tools to enhance assessment practices?

Assessment is central to an *Understanding by Design* approach to instructional design as well as a constructivist approach to learning and teaching. Also, at the core of most K12 digital initiatives is data-driven instruction, which builds on the unique capabilities of digital assessment tools to collect and report student assessment data in real time. Digital tools can also open up new and more authentic ways for students to demonstrate their learning besides traditional paper-and-pencil tests and papers. Building on the experiences and insights developed in the previous modules, in this module participants will revisit fundamental principles of assessment as well as examine new opportunities offered by a few selected digital assessment tools to: (a) elicit students’ prior knowledge; (b) provide students with multiple ways to demonstrate their learning; (c) provide opportunities for formative assessment – along with ways to quickly summarize assessment data to inform instruction; and (d) collect, analyze and report summative

assessment data. This module will include both an asynchronous and synchronous online component, to enable participants to “experience as learners” both of these modalities. As part of the synchronous session, students will also hear from experienced DRTL teachers about their use of digital tools for assessment and how they chose what tools to use. Students will immediately apply what they learned in this module by re-designing assessments for their chosen unit, so that they are consistent with the revised learning goals identified at the end of the previous module, and they make that best use of appropriate digital tools.

MODULE 4: Leveraging Technology to Convey Content (3 weeks)

Essential question: How can we leverage multi-media and digital technologies to best convey content?

One of the greatest benefits of DRTL is the ability to move beyond the constraints of a textbook, and leverage high quality digital multi-media content that are available from publishers or for free on the Internet (often referred to as “open educational resources” or OER) as well as multi-media materials the teacher can create specifically for his/her own students. As the amount of currently available digital resources can feel overwhelming, teachers will need to develop strategies and skills to both identify relevant digital resources, and then evaluate which ones will truly be useful given their specific goals and audiences. Similarly, in order to create high-quality multimedia materials for their students, teachers will also need to become familiar with some digital tools available to create such materials, as well as research-based principles to inform their development. To develop the necessary knowledge and skills, in this module students will examine research and theory about the implications of using different kinds of media and formats to convey content, as well as develop practical skills and strategies to both create high-quality multi-media materials themselves and to identify and select existing ones. Students will also hear from current DRTL teachers as “virtual guest speakers” about how they have identified appropriate OER to use in their classes, and see some of the multi-media contents they themselves created for their students. As part of their Independent Project, students will then both identify existing digital resources and create some new ones to share with students in their revised unit. Reflections on the experiences as learners and as teachers in this module will also include considerations about what it takes to design quality online resources for one’s students.

MODULE 5: Leveraging Technology to Promote Collaborative Learning (2 weeks)

Essential question: How can we promote and support collaborative learning using digital technologies?

Fundamental to social-constructivist theories of learning is the principle that students can learn from each other; therefore, it is important for teachers to design learning activities that not only engage students with content, but also with each other in effective ways as an integral part of the learning process. There are several digital tools that can help doing so in the context of a K-12 classroom. Students will reflect on the activities and digital tools they have experienced as learner in the course, as well as hear from current DRTL teachers as “virtual guest speakers” about how they have used technology to promote and support their K-12 students’ collaborative learning – with special attention to leveraging functions built into the LMS adopted by their school. This module will also include a

discussion of the values, limitations, and roles that can be played by the software most commonly used in K-12 schools today to serve an LMS function (i.e., Schoology, Google Classroom, Microsoft 365). Students will be asked to apply what they learned in this module to redesign the learning activities in their Independent Project unit with special attention to providing students with opportunities to collaborate with each other, leveraging technology as needed.

MODULE 6: Designing Effective DRTL Lessons (2+ weeks)

Essential question: How can we design DRTL activities that leverage how people learn best?

In this module, students will pull together all they learned in the course so far to complete the redesign of their chosen unit for the Independent Project, building on what done in the previous modules and moving it to the “next level” through further revision – while benefiting by feedback from both instructor and peers.

MODULE 7: K12 Digital Initiatives (concurrently with Module 6)

Essential question: What is going on in terms of district-wide K-12 digital initiatives, and what implications could these initiatives have?

Integrating digital technology in one’s teaching takes on a different dimension when it takes place as part of a district-wide initiative – whether it goes under the name of *digital conversion, one-on-one initiatives, personalized learning* or other. Understanding the promises and challenges of these initiatives is important for both teachers and administrators. Selected readings and accounts of experiences will be introduced and discussed in this module in light of the experiences participants had in the course so far. Most of this work will take place while each student is also working on the final revision of their DRTL unit to complete their long-term Project.

MODULE 8: Pulling it Together (1 week)

Essential question: How is your teaching practice going to be affected by what you learned?

At the end of each module each participant will have recorded highlights of what they learned in that module in their private journal. At the end of the course, each participant will be asked to review their journals, and then write a personal narrative identifying their key take-aways from the course as well as major implications for their teaching practice. A final face-to-face session will provide the opportunity to share some of these highlights, as well as their overall feedback on the course – so as to enable the course instructors to revise it for future offerings.

Course Requirements and Expectations

On-going Independent Work

A variety of independent learning tasks (involving reading, writing as well as other kinds of activities) will need to be completed within each module, with specific intermediate deadlines, as articulated in detail in the “Directions for Independent Work” posted at the

beginning of each Learning Module in the course Blackboard site. These tasks must be completed on time, as the following class session and/or subsequent tasks will often assume and make use of them.

These tasks will be organized every week (or couple of weeks) in a “Learning Module” posted on BB, and will usually involve a combination of:

- **“Readings”** – where the documents to be read are not only traditional texts, but could also include videos, narrated PowerPoints, Panopto files, websites, etc. All required readings will be accessible online in Blackboard.
- **Assignments** – these may involve writing as well as other kinds of tasks, and often result in a product that needs to be submitted online on Blackboard – either privately as an *assignment* that will be accessible only to the instructor, or publicly by posting them in a specific *discussion board*, as directed in each case by the instructor. Unless they are part of one of the major projects (as described earlier), these assignments are not intended to result in finished nor polished reports. Therefore, students will not receive a letter grade for most assignments, although they will be assigned points for satisfactory completion that will affect the final grade in the course (as explained later in the Course Assessment section of this syllabus).
- **Reflective Journal entries** – at the end of each learning module, students will also be asked to synthesize the key learning and insights gained from that module’s readings and other learning activities in a private journal, in response to an “essential question” posed by the instructor (although students are always encouraged to add additional observations and insights). Unlike contributions posted in Discussion Boards and social media, these journal entries will be accessible only to the student and the instructor. Students are expected to take advantage of and build on these journal entries in preparing their Final Reflection Paper at the end of the course.

Class Participation

The success of this course, and the extent of each student’s learning, will depend on his/her full and timely participation. Thus, we expect that students will attend all the synchronous as well as face-to-face class sessions, actively participate in discussion boards and other types on interactive online spaces, and meet the established deadlines for each assignment. In case you are unable to do so in a specific week, please let Dave Miller know in advance and as soon as possible. Lack of participation in face-to-face classes, synchronous sessions, discussion boards or other interactive online assignments will result in missing class participation points, unless particular make-up arrangements have been made with the instructor ahead of time. Most importantly, it will take away not only from your own learning in the course, but also from that of your classmates!

Major Projects

As culminating learning experiences and summative assessments, you will be expected to complete the following two “major projects” (as already described in the previous Key Assessments section):

1. ***DRTL Lesson Project.***

2. *DRTL Final Reflection.*

Detailed directions for each of these projects can be found in the General Information Folder on Blackboard.

Each of the “major projects” should show the student’s “best work” and will be graded according to a rubric, provided along with the detailed description of the assignment.

Course Schedule/Timeline

An agenda for each class session and a list of key tasks to be completed independently in-between each class session can be found in the Course Schedule section of BB (directly accessible on the left-side Menu). This document will be continuously updated to reflect any scheduling changes that may occur in the course of the semester (although we expect these changes, if any, to be minor and rare).

Please make sure you set aside the weekly class-time of 4:50-7:30 pm every week, even when we do not have a face-to-face meeting scheduled, as this time may be used for synchronous online sessions involving either the entire class or small groups.

Workload expectations

According to New York State Education Department, a 3-credit course should include a total of about 35 “contact” hours, plus at least about twice as many hours of independent work on the part of each student, for a total commitment of over 100 hours on the part of each student. Although this course will not have the same number of face-to-face meetings, it is our expectation that it will require students the same effort as a traditional course and, thus, total number of hours overall. Therefore, it is important that students set aside a total of at least 8 hours each week for a combination of class time and independent work.

Additional considerations about online learning

Taking a course with online components requires somewhat different practices than traditional face-to-face courses in order to achieve the same learning goals and outcomes. Especially if you have never taken an online course before, we recommend that you read the ***“Considerations for Student Success in Online Courses” available within the General Information Folder on BB.***

One thing in particular that we would like students in this course to keep in mind is that, in order to ensure interactions among students as required by specific tasks assigned as part of their independent work each week, there may be multiple deadlines to submit assignments each week.

Technology Requirements

To make sure students have all the necessary technology to actively participate in all aspects of this hybrid-online course, we have identified below all the hardware and

software needed to fully participate in both synchronous and asynchronous course activities:

- *Access to Mac or PC-based Computer with:*
 - *High Speed Internet capability*
 - *Speakers, microphone and a video cam*
 - *Adobe Reader*
 - *Plug-ins for your preferred browser to play videos*
 - *Latest version of Java installed for your preferred browser*
- *Tablet and/or laptop with internet connection to be taken to each class session*
- *Optional – bring your iPad or Chromebook to class if you would like to try things with the devices you might be using at your school*

Please verify that you meet all these technology requirements (and test them to make sure they work) before our first class meeting.

Learning Assessment and Grading

Half of your grade in the course will be based on class participation and weekly assignments, and the other half on your performance on the three major projects. More specifically:

- **Class participation: 20%** (based on points assigned to active participation in each face-to-face class/synchronous session attended)
- **Weekly assignments** (including discussion boards and reflective journal entries): **50%** (based on points assigned for completing each assignment on time and satisfactorily, as indicated in the Directions for Independent Work for each learning module)
- **Final Product for DRTL Project: 20%** (based on quality of the product, rubrics-based)
- **Final Reflection: 10%** (based on quality of the product, rubrics-based)

For a complete and updated list of the maximum number of points associated to specific assignments and other components of the course, see the “Course grading scheme” document posted within the General Information Folder on Blackboard.

Grading scheme:

A: 95-100%; **A-:** 90-94%; **B+:** 87-89%; **B:** 83-86%; **B-:** 80-82%; **C:** 70-79%; **E:** <70