# Situated Learning Through Situating Learners as Designers


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## Introduction

This chapter describes the redesign process conducted on a 10-week hybrid multimedia development course for students in a teacher preparation program. Though the existing course was created to develop teacher skill in curricular design using various digital tools, our redevelopment emphasized the process of design and how to create designs for learning in which the tools will be put in the hands of learners. The design case described is part of a longer design-based research project focused on the development of courses grounded in the principles of constructionist learning and the design thinking process. This case represents a unique design for learning that is grounded in a theoretical framework which aims to situate learners as designers by connecting constructionist principles, designerly ways of knowing, situated learning, and identity exploration.

## Design Goals

This project was a redesign of a 10-week hybrid *Multimedia in Instructional Design* course for students in a teacher preparation program offered through the School of Education at an urban university in the Eastern United States. The course is mandatory for students in both the undergraduate- and master's-level tracks and is intended to help students develop skills in creating and using multimedia and using instructional design models. The existing course originally focused on how to use various tools to create instructional products.

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We were invited to teach this course for the summer quarter of the 2015–2016 school year. While the multimedia course is typically offered year-round as an entirely online experience, the summer offering leverages the benefits of both an online class hub (Blackboard) and a weekly in-person meeting, held in the evenings to accommodate students' busy work and teaching schedules. As graduate students and faculty with research and teaching expertise in digital media, design, and collaborative and transformative learning, this course offered a valuable opportunity for us to build on the unique benefits of the hybrid digital and in-person experience in a new course design and implementation. The goal of our redesign was to focus more on the process of design, including not only how those tools might be used to create products but also how to create designs for learning in which the tools will be put in the hands of learners. This paper describes the design process we enacted to create and implement the first iteration of our *Multimedia in Instructional Design* course. We contend that the course design offered richer and more tailored experiences for our group of pre-service teachers who took the class with us in 2016, as design decisions were shaped by the needs of the group and our personal theoretical perspectives and research stances.

## Background

As researchers and educators who value deeper learning processes that can meaningfully engage students in self-directed learning as creation and self-transformation, we redesigned the multimedia course to offer experiences that align with these values and research perspectives. More specifically, we leveraged an evolving theoretical framework that synthesized and integrated four distinct lines of theory—three from literature in the learning sciences and one from the literature in the design sciences—to shape our design decisions that we enacted across the learning experience. Given that the research background of designers has a great deal of impact on their design choices (Howard, 2011), we share our individual experiences and roles in the design process below. We then briefly introduce the emerging theoretical framework that informed our assumptions as instructors and course designers.

### *Designers' Stance*

Jonan Donaldson has been an educator for two decades and has participated in extensive instructional design work. In both teaching and instructional design work, he uses constructionist (Papert & Harel, 1991) and situated learning (Lave & Wenger, 1991) approaches. His current research as a PhD candidate investigates conceptualizations of learning and their impact on practices in teaching and learning, design thinking in learning environments, and the relationship between design and learning. He served as the lead researcher in this project and co-teacher of the course.

Amanda Barany has worked and studied in education and educational psychology programs for the last 7 years. Her previous work has explored student interest and motivation, identity exploration, and the effects of implicit bias in higher education, with a growing research emphasis on the affordances of games and digital technologies for learning. Her current research as a PhD candidate investigates patterns of engagement and identity exploration in online communities of practice. She also co-taught this course.

Brian Smith is a professor and Senior Associate Dean of Academic Affairs in the College of Computing and Informatics at Drexel University. He served as associate professor in the MIT Media Laboratory (1997–2002), associate professor of Information Sciences and Technology at Pennsylvania State University (2002–2009), and Dean of Continuing Education at the Rhode Island School of Design (2010–2013). His research interests include the design of computer-based learning environments, human-computer interaction, informal learning, creativity and innovation, and computational thinking and flexibility.

## *Theoretical Synthesis*

The theoretical constructs of constructionist learning, designerly ways of knowing, situated learning, and identity exploration contain features which naturally align, and because they are important perspectives in our work as educators, we leveraged them to synthesize an integrative theoretical framework that supported our design decisions.

*Constructionism* structures all learning around student construction of artifacts (Papert & Harel, 1991). The construction of meaning informs construction of artifacts, which in turn inform further construction of meaning in mutually reinforcing cycles of iterative development (Kafai, 2006). To facilitate this process, we considered ways to promote focused tinkering (Resnick & Rosenbaum, 2013) and encourage student ownership of artifact construction (Papert, 1999) in our course redesign.

*Designerly ways of knowing* describes a complex and interdependent set of characteristics enacted by designers (Cross, 2006) including framing (Dorst, 2011; Schön, 1983), wicked problems (Cross, 2006; Rittel & Webber, 1973), abductive reasoning (Dorst, 2011), divergent and convergent thinking (Dorst, 2015; Runco, 2014), rapidly changing goals and constraints (Razzouk & Shute, 2012), prototyping from abstract to concrete (Brown, 2009), constructing prototypes according to designer-constructed meanings (Poulsen & Thøgersen, 2011), contextualized thinking (Suwa, Gero, & Purcell, 2000), reflecting on relevance (Clark & Smith, 2010), and reflection-in-action (Schön, 1995). We extend the traditional definition of a designer to include students engaging in the construction of meaning and classroom artifacts and applied these practices to the redesign of our course.

*Situated learning theory* emphasizes the collaborative construction of meaning through participation in communities of practices, where newcomers are encouraged to enact valuable forms legitimate peripheral participation that gradually

shifts toward more central community activity and expertise over time (Lave & Wenger, 1991). In keeping with this literature, we redesigned our course to encourage authentic participation around a shared practice or topic (digital media use in classroom teaching) (E. Wenger-Trayner & B. Wenger-Trayner, 2015) and in alignment with the specific physical (physical environment, tools, and resources) and social features of this community (Hutchinson et al., 2015; Wenger, 2000).

*Identity exploration* research reconceptualizes learning as a process of self-transformation over time (Illeris, 2014; Kaplan, Sinai, & Flum, 2014). Learning environments can support this process by encouraging participants to "try on" new roles as they negotiate their internal, historical sense of self in relation their current self a designed context (Erikson, 1959; Markus & Nurius, 1986; Vygotsky, 1978)—in our case the identities of a designer and educator in a collaborative and authentic classroom and design context. We designed our course based on Kaplan and colleagues' (2014) call for environments that facilitate a sense of safety, promote relevance, trigger exploration, and scaffold exploratory actions as a way to encourage identity exploration.

Multiple areas of alignment exist across these theoretical elements, as visualized in Fig. 1. This integrative framework provided the structure for the design case discussed below in which we worked to situate learners as designers and future educators that use digital media tools.

## The Design Case

This section will describe the context, the design moves we made, our implementation of the design case (Boling & Smith, 2012), and our reflections on the design.

### *Course Context*

The cross-listed undergraduate- and master's-level course *Multimedia in Instructional Design* is offered each of the four course quarters as a mandatory feature of the teacher preparation program at an urban research university. The course is hosted entirely online and includes readings and written assignments designed to support learners as they "investigate learning theory and its implications for interactive multimedia formats, including the relationship of instructional design principles to selection of media elements (text, video, sound, animation, and graphics) for high-quality design" and "examine human-computer interface principles, navigation features, and visual thinking using a wide range of educational software examples" (Donaldson, 2015).

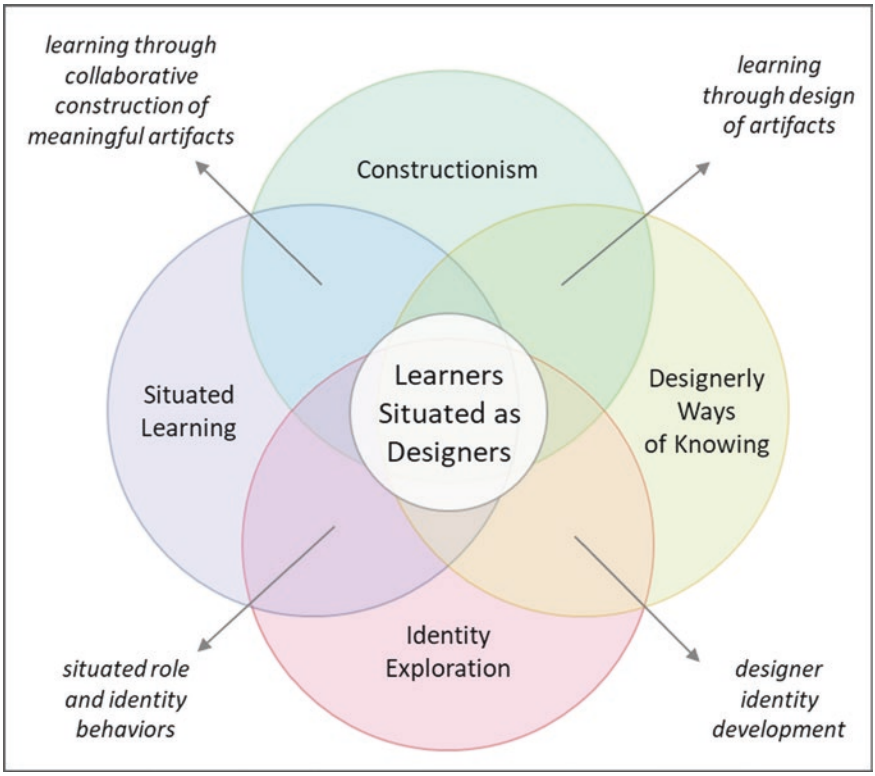


**Fig. 1** Theoretical framework integration of constructionism, designerly ways of knowing, situated learning, and identity exploration through which learners are situated as designers and future educators that use digital media tools

Across the 10-week experience, students complete two writing assignments in the early weeks of the course related to the use of digital media tools in education. Using an inquiry-based approach, the learners then explore existing digital media tools (audio, screen capture, animation) and develop their own media elements to share with peers. Discussion board posts every 2 weeks encourage peer-to-peer discussion, and a final group project encourages learners to engage collaboratively at the conclusion of the course. All course elements, including individual submissions and peer interactions, are hosted on the Blackboard Learn course management system.

The initial design of the course offered a valuable and unique structure upon which to base a course redesign that situated learners as designers, given the existence of inquiry assignments that encourage agentic exploration and use of digital tools in their projects. The hybrid-style course, which included the use of Blackboard as well as weekly in-person classes, offers a particularly unique opportunity to design a learning environment more deeply situated in authentic and collaborative designer and educator practices that can be tailored to encourage individual identity exploration and designerly ways of knowing.

## *The Design*

Design decisions were made, rejected, and revised in a fluid and emergent fashion throughout the design process. However, they will be discussed here in terms of three design principles, which in practice were more like discussions with the design situation around design questions. Design is "inherently an emergent, ill-structured problem-solving process" (Svihla & Reeve, 2016, p. 6), and the ill-structured problems in this design project were:

- What features of a designed learning environment can situate learners as designers?
- What designed facilitation practices can situate learners as designers?
- In what ways can constructionist learning, situated learning, designerly ways of knowing, and identity exploration be operationalized in this design situation?

This set of problems were not pre-determined but evolved over the course of the design project. Before we began our own design framing process, the questions were simple and did not include all aspects of the framework described in the previous section. The framework and problems emerged not only in response to design moves but also through negotiated reframing informed by the unique backgrounds of the designers. However, from the beginning the overarching goal of our design was to create a learning environment that encourages future educators to reimagine learning as a design process through their own engagement in the creation of meaning through conversation with the design situation (Smith, 2016).

**Design choices—constructionism** Early in the design process, we adopted constructionism as our theoretical/philosophical framework to inform course development, so at the earliest design stages the design was structured around learners making things. To that end, we chose to highlight the multimedia projects from the original course and structure the creation of those elements around a design thinking process that could encourage learners to first conceptualize the problem or issue they hoped to address and then creatively and iteratively design their projects as potential solutions. In this way, we encouraged learner agency in the identification of their area of interest, as well as focused tinkering around their designed solutions. We selected a flexible research and design lab room as the site for the in-person class sessions because we wanted an informal space without the physical limitations of many classrooms such as front-facing desks and limited useable wall space.

Ultimately, we found that there are a wide range of possibilities in terms of translating these ideas into practice and therefore chose to integrate aspects of the IDEO (Collins, 2013) and Stanford d.school (Mickahail, 2015) design thinking process models to design our own five-phase model (see Fig. 2). We implemented the five-phase model into the second and third weeks of the course and then referred learners back to the process in subsequent weeks so as to allow for gradually releasing the scaffolding while increasing learner agency as they gained skill enacting this process in their own time.

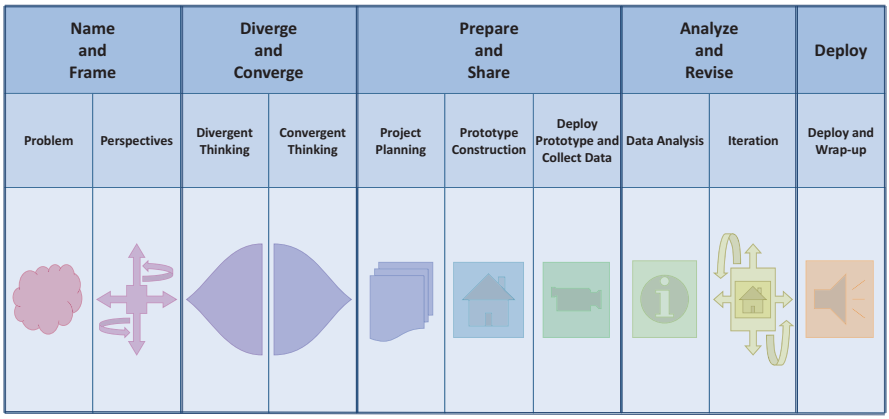


**Fig. 2** DTEL process model (DTEL-PM) visualized (Donaldson & Smith, 2017)

The redesigned multimedia projects in weeks 4–8 ultimately consisted of weekly individual multimedia development projects that focused on different multimedia skills (i.e., video editing, music sampling). Each week, we briefly walked students through the functionality and affordances of available multimedia tools, then opened up the room for a period of open exploration and artifact creation while we remained present to provide support.

To further encourage iterative design and focused tinkering around these individual projects, we redesigned the final group project as a collaborative peer effort in which learners could merge and refine their earlier designed elements into a full, cohesive presentation. Figure 3 is a still from a stop-motion video animation created as an individual project, which was later integrated into a group project. The goal of the redesigned group projects was to leverage students' own shifting understandings of learning and knowing to influence similar identity changes in a hypothetical student; thus, we asked students to discuss and reflect on their own identity exploration processes through the course to inform the design of their multimedia tools to support identity exploration and change.

Figure 4 depicts the designed layering of constructionist learning principles (agency, real-world audience, celebrating failure, creating artifacts, and focused tinkering) over the 10 weeks of the course.

**Design choices—designerly ways of knowing** In our early iterations of course design, we situated learners as designers purely through the use of the design thinking process. Through our discussions in design meetings, we soon agreed that the design would be stronger if we differentiated the design thinking process model from design thinking strategies by adopting Cross's (2006) term "designerly ways of knowing."

We operationalized designerly ways of knowing by embedding opportunities for these strategies into each week of the course (see Fig. 5). For example, during the framing and reframing process, the concept of a wicked problem was introduced

**Fig. 3** Example of a stop-motion video participant-designed artifact

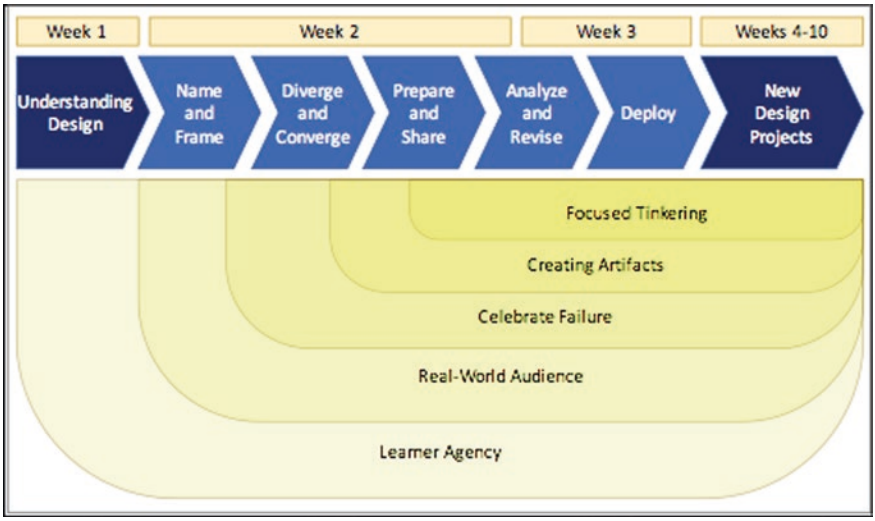


**Fig. 4** Constructionist learning principles in the course

using Rittel and Webber's (1973) definition as problems which cannot be defined in the absence of a definition of a solution (the problem and solution definitions co-evolve), have no definitively "right" or even "good" solution, and will inevitably displease some stakeholders. We encouraged students to work in small groups to identify problems they found valuable and to formulate a problem statement around which they could design solutions. Each week, we asked students to spend a few minutes reflecting on their problem statement and encouraged them to shift or mod-

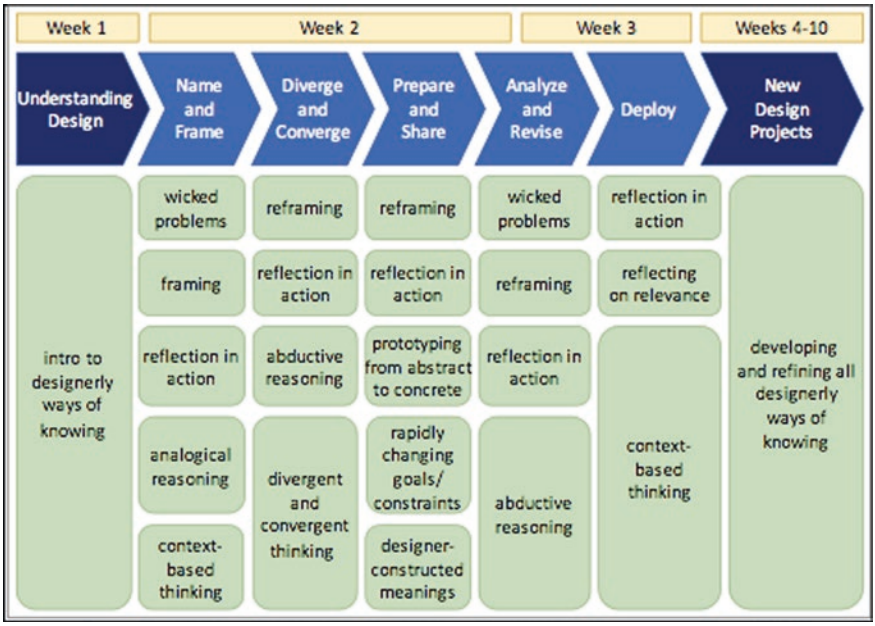


**Fig. 5** Designerly ways of knowing in the course design

ify their problem framing to better suit their needs and designs as they evolved across individual and group projects.

Examples of reflection-in-action involved periods of free reflective writing on their design processes, struggles and successes, and shifting understandings of learning and the self. The process of iterative framing and reframing, as well as reflection-in-action, supported learners in the use of abductive reasoning, in which they shifted their understanding of learning and teaching with multimedia tools based on their own course experiences. To further cement these shifts, we encouraged the learners to explicitly reflect on theoretical conceptualizations of designerly ways of knowing and their personal experiences enacting them through weekly class discussions and relevant readings.

**Design choices—situated learning** Consistent with a situated need for authentic, collaborative learning environments, we selected a digital media design lab that is public for student use at the university as the site for the in-person class meetings. The design of the digital media lab differed from the original classroom reserved for this class, which featured a more hierarchical structure of individual desk chairs all turned toward a podium where the "expert" teacher might transfer knowledge. The new room featured a large, rectangular table around which both learners and the instructors could sit and equitably engage in discussion and collaborative design. We chose this site because it housed a wider variety of digital tools, such as a green screen backdrop and padded sound recording booth. The room was also optimal for use in the redesign because it featured open areas where students could break out

into large or small groups to enact the design process and use a variety of tools simultaneously. While the "front" of the room featured a smartboard and projector, we intentionally chose to leverage this feature primarily for the group to share their individual and collective designs, so that they might elicit peer feedback and collectively mediate their learning experiences.

In keeping with their situation in a design lab, we encouraged the group to engage authentically as legitimate peripheral participants in a designer community of practice, enacting all phases of design thinking and utilizing multimedia tools despite limited prior experience. To encourage a sense of safety and promote these kinds of legitimate peripheral participation, we decided to intentionally leave expectations for the weekly individual projects open-ended and graded on completion only to promote a safe environment for students to explore designer identities and support exploration of their triggered interests. During the individual projects, we encouraged students to help each other as often as possible. We discouraged hand-raising in the class and solicited active participation as a vital part of knowledge generation, which positioned learners as valuable contributors of tips for successful tool implementation and the optimal use of digital media to address their wicked problems.

**Design choices—identity exploration** Our design move of engaging learners in the design thinking process led us to reflect on the implications and affordances of situating learners as designers and aligned with designers' backgrounds and research perspectives. The metaphor of "construction" in which constructivist and constructionist learning are grounded leads to an active/productive conceptualization of learning. The metaphor of "design" could be used in a similar fashion, so we used this metaphor to engage students in conceptualizing learning as the individual and collaborative design of knowledge through the individual and collaborative design of artifacts. This led to our developing awareness that this was not only "learning by doing," or even "learning by making," but also "learning by becoming"—in this case, learning by becoming designers. This perspective aligned with the constructionist principle of designing for optimal learner agency.

Although the designed opportunities for reflection and discussion of the self as a designer provided opportunities for student identity exploration, this concept emerged as a theoretical framework late in the design process. From our previous experiences, we knew that constructionist learning opens up unique opportunities for identity exploration. By going back through the design to make explicit their roles as designers, it was then possible to design reflective activities to trigger identity exploration. Figure 6 depicts our design scheme by which to operationalize Kaplan, Sinai, and Flum's (2014) aspects of identity exploration—trigger exploration, scaffold exploration, promote relevance, and sense of safety.

At each phase of the design thinking process model concluded, we asked students to write reflective posts on their developing perspectives on learning, as well as moments of insight, frustration, and changing feelings (see Fig. 7). Reflection questions such as this related to students' changing knowledge and affect in classroom experiences have been identified as useful design tools for supporting the identity exploration process (Shah, Foster, & Barany, 2017).

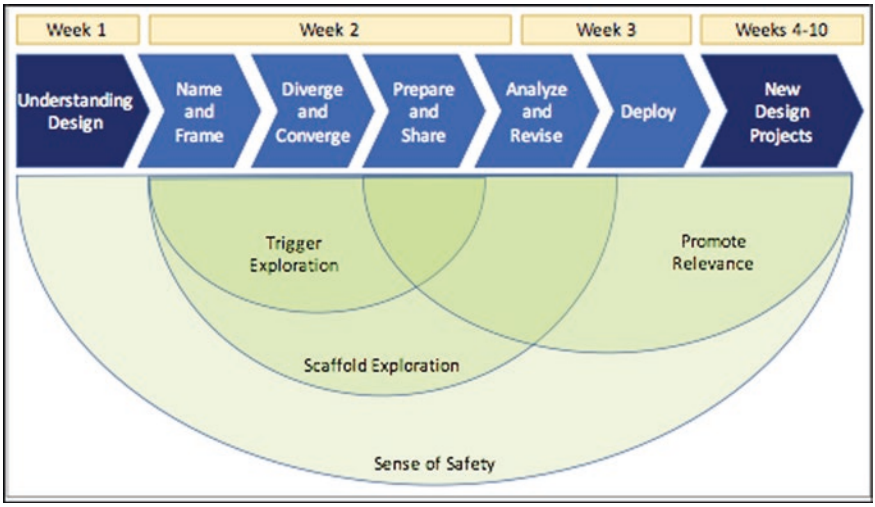


**Fig. 6** Identity exploration in the course

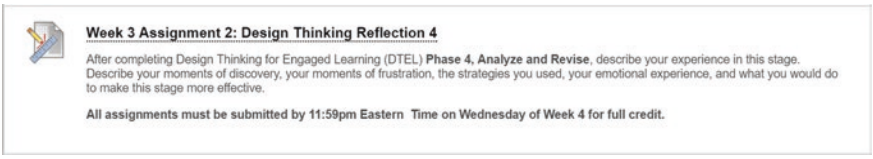


**Fig. 7** Example of a reflection prompt

## *Final Product and Student Response*

While our theoretical synthesis served as the basis for initial design changes we enacted (described above), design also shifted to meet the specific needs of students in the course implementation. Nine students attended the redesigned hybrid course in the summer of 2016. They were a nearly even mix of undergraduate and graduate students. There was a fairly even balance between male and female students and participant diversity in terms of race, native language, and socioeconomic background.

During the first week, we asked students to discuss their existing conceptualizations of the word "design" and its role in the life of an educator. We introduced the constructionist nature of the course and the design thinking process we had chosen to implement, and students watched a short video illustrating real-world examples of technology that promotes social connection and change. Ultimately, we learned from week 1 that our students were inspired to use digital tools in their classrooms but had limited knowledge of how to use or implement them. In addition, the majority of the class was unfamiliar with constructionist learning, necessitating that we enact more modeling of the process in early weeks to provide structure and build confidence.

During the second and third weeks, we asked students to form four groups to engage in constructionist learning projects, where they used the design thinking process to develop solutions to a wicked problem that they collectively chose. Based on the needs of our students, we chose to offer more structure to guide their early enactment of design thinking by giving them estimated time limits and brief explanations of how each phase is often enacted by designers. We also regularly participated in the process with the students (i.e., generating possible solutions with them during the idea generation process). After each design thinking stage, we invited students to reflect briefly about that stage (what they liked, disliked, or noticed about the experience), followed by group discussion regarding the purpose and nature of the stage in relation to the larger design thinking process.

During stage one of the design thinking process, we offered each group time to engage in discussion and negotiation, during which they framed the proposed wicked problem, which read "Some of your future students will have conceptualizations of learning as the *acquisition* of knowledge (e.g., memorizing facts). If we believe students will engage in deeper learning if they shift to conceptualizations of learning as the *construction* of knowledge, how might you facilitate that conceptual shift?" After a detailed and situated description of the problem was initially constructed by each group, we guided students through "problematization" of the issue, during which students re-framed it from the perspectives of various potential stakeholders. For example, one group's conceptualization of the problem was reframed from the perspective of a middle-school student in a plant biology lesson who feels unconnected to the course material. We noted that the process of problem framing and perspective-taking necessitated a detailed negotiation process between all nine learners as they grappled with these new processes and ultimately worked to synthesize their different perspectives and areas of interest. We therefore chose to allot twice the planned amount of class time to stage one (almost 2 hours), so that the group had a firm foundation on which to build their designs.

In the second stage, we introduced divergent thinking strategies to encourage students to generate a large number of potential solutions to their wicked problems. Each individual wrote as many ideas as possible on sticky notes, which they placed randomly on their group's wall. After they ran out of ideas, we intentionally encouraged them to come up with many more ideas—no matter how crazy or impractical. We then introduced the convergent thinking process, during which students silently viewed all the ideas on their group's wall and re-arranged the sticky notes into meaningful patterns. Finally, we opened up small group discussions on their various groupings of ideas and invited groups to negotiate a few related ideas into a single, multifaceted idea they could develop into a solution. Ultimately, we noticed that the group was initially hesitant to offer ideas that were too impractical, so we chose to offer up a few of our own (particularly crazy) ideas to set an example for more creative ideation. Figure 8 depicts one such design thinking wall at the end of the divergent and convergent thinking stages. This example group coalesced around creating digital media that connects the growth process of plants to students' development and change as humans.

**Fig. 8** Example of a design thinking wall

In the third design thinking stage, we asked students to translate their chosen solution into a plan of action through a project planning activity and then to begin developing prototypes for implementing their solutions (i.e., curriculum). We then engaged the class in discussion on the difference between a prototype and a final design and encouraged groups to prototype in whatever modality they deemed appropriate. In the example group, students merged their specific design interests and skills to develop multiple short digital media pieces that connect botany to student identity. A particularly notable example involved the pairing of a student's original song with a side-by-side video of a growing plant and a student slowly reaching up to the sky (an analogy for personal growth).

The next phase in the design involved groups' deployment of their prototypes to real-world situations to receive feedback. Though we chose to allow students freedom in their choice of deployment method, all groups decided to share their prototype designs via social media; preliminary picture, video, and audio pieces were disseminated to peers online with requests for feedback and development ideas. We noticed that this aspect of the design was difficult to enact on short notice, so we chose to encourage the learners to continue gathering feedback from their sources and to implement them across the weeks.

The fourth phase in our design involved group analysis of feedback collected from their real-world deployment and the process of design iteration based on what they learned. As part of this process, we noticed individuals sharing their creations and asking for feedback on their projects. This inspired us to implement a supportive "art critique" in class, during which students who wanted to could share their work on the smartboard and solicit ideas and feedback from the class. This offered valuable feedback to the designers; the example group discovered that some peers only noticed one half of the side-by-side video due to color and brightness differences and decided to implement video quality adjustments to improve color matching and visibility.

During the final stage of the design thinking process, we encouraged each group to deploy their designs in real-world contexts. The example group integrated their digital media pieces in a real-world biology course, while other groups disseminated their designs in digital formats such as online portfolios, websites, and video platforms.

The course design included two iterations of the design thinking process; in weeks 4 through 6, students developed projects individually, and we provided more explicit scaffolding such as introductions to each phase, descriptions of each activity, and time frames for in-class work. We started the small group design projects in week 4, which continued through the tenth (and final) week. We then chose to pull back scaffolding of the design thinking process at this stage; students had freedom to flexibly implement design phases as we had introduced them. We also encouraged students to integrate or iterate on their individual design projects into their larger group designs (such as the one described above) as they saw fit. Each week, we offered both written reflection and group discussion regarding the relationship between their individual design processes and the larger group design process. We asked students to "publish" their creations in week 10, but encouraged students to choose their own methods of dissemination. We stressed that the final form of dissemination should have real-world impact.

Informed by theory, we chose to frequently and purposefully encourage learner ownership and agency in their own learning process throughout the term. Tinkering was also emphasized explicitly, as was the celebration of failures.

## *Designer Perceptions and Reflections on the Design Case*

Our reflections here are informed by our experience as designers and as facilitators. We include excerpts from students' written reflections to illustrate what we noticed.

We noticed as facilitators that during the first 3 weeks of class, everyone felt disoriented and uncomfortable with the lack of specific directions and detailed expectations. They came into the class with their own set of expectations regarding the roles of the instructors and their roles as students. Initially, students expected us, as instructors and figures of authority, to provide them with information, which they would then be responsible for remembering and using. This suggested that our innovative course design included expectations, patterns of in-class activity, and levels of student agency that were unlike students' existing classroom experiences. We noticed student discomfort lifted toward the end of the design thinking process in the fourth week. Many indicated surprise at the realization that they were actually learning something given the absence of "content" delivery in the course. Their confidence levels rose toward the end of the fourth week and early fifth week, but dropped again during the fifth and sixth weeks in reaction to the removal of the design thinking process structure of earlier weeks. However, toward the end of the course, students demonstrated confidence, learner agency, and excitement as they explored their new-found identities as designers and educators. We believe these patterns of falling and rising discomfort, confidence, and agency were integral to the learning process in this course.

In addition to development of learner agency, we also noted discussion of perceptions of what it means to learn. Many participants discussed their shifting perceptions of the goals and methods of education. There were several variations of the

sentiment "In the past I studied for tests and papers, only to promptly forget everything. What I realized recently is that isn't learning, really. I want to be a different kind of teacher than that." Our design intention was that the future educators who participated in this course would approach teaching and curricular design with consideration for these shifted perspectives of learning, as illustrated by the following student example:

> Through this course, we were challenged to experience learning by embracing mistakes. Being encouraged to make mistakes was incredibly enlightening and helped me to better understand the importance of pushing students to take risks, making sure they understand that mistakes are a positive, essential component of learning for understanding

As this course design promoted changes in students' perceptions of learning, and integration of designerly ways of knowing, students discussed their past and present selves as learners; as a whole, students appeared to become aware of the need for an identity shift toward designerly ways of thinking, and many attempted this shift with varying degrees of success. Students reflected on how the process affected them ("I have very rarely been encouraged and comfortable enough to act as uninhibited and silly and creatively") and reflected on the agentic nature of the identity exploration process ("Self-exploration allowed me to craft my own creativity"). On several occasions, students also described how they plan to use elements of this course design in their own classes to enact similar changes:

> This attitude of openness and acceptance seems to be the most critical aspect that I will implement in the classroom environment I hope to create
>
> Just as we were never told that we were right or wrong in the way we approached our designs in class, I want to do the same for my students
>
> At first, the open-ended nature of the assignments was difficult for me to navigate, as the majority of my previous secondary education experiences … were modeled after the transfer-acquisition metaphor. The constructivist and constructionist strategies employed drove me to experience first hand the type of instruction I would like to utilize much of the time in my future classroom

As designers with strong backgrounds in situated learning, we saw this course design as facilitating the development of individual identities as defined in relation to the emerging identities of others, particularly in leveraging the design thinking process to support empathy development. This process of defining the self by considering other community identities became apparent in students' written and spoken reflections. As a result, students regularly reflected on the uniquely situated nature of each learner's experiences and the importance of attending to the situated perspectives of others to understand one's own change and development.

## Conclusion

This design case exemplifies a design for learning grounded in a strong theoretical framework reflecting our backgrounds as designers, one which integrates elements of constructionism, designerly ways of knowing, situated learning, and identity

exploration. By making design moves which situated learners as designers in a constructionist learning experience that promoted designerly ways of thinking and knowing, learners were pushed to challenge their existing conceptualizations of what it means to be a learner and to reframe their perceptions of self with consideration for existing identities in the broader learning community. This design holds promise as a novel exemplar of curricular experience design to promote shifts among educators and pre-service teachers toward increased learner agency, reframed conceptualizations of learning, and new identities as designers that they can apply to their own future designs for learning.

This design case will be used in our future efforts as designers to produce designs which better support future educators as they develop deeper understandings of learning as a more individualized and situated design process.

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