

11. User Experience Design and Double Binds in Course Design

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Abstract: This chapter explores course design practices based on a user experience (UX) perspective. Drawing on a three-year case study of the evolving design and execution of a senior capstone course, the chapter examines how course assessment data—gathered through both institutional instruments and instructor-developed practices—were used to guide decisions about course design. Using selected examples over the time span of the study, the chapter illustrates techniques for translating student observations and desires into requirements and classroom practices. Turning to an analysis of successes and failures, the chapter explores the idea of *double binds* in designing from user experience perspectives. This analysis addresses the question of what happens when an instructor is willing to make radical course design choices based on expressions of student experiences and desires.

Keywords: Double binds, instructor-designer, design, user experience, capstone

Key Takeaways:

- Effective, artful instruction emerges from learning experiences design informed by attention to student users engaged with that design.
- Listening to students provides insights into what they need or desire to support their learning, but students' needs and desires may be conflicting and even contradictory within any given class.
- These contradictory needs and desires can result in instructors facing double binds, situations in which the designer faces a dilemma due to competing demands.
- This chapter identifies three types of double binds instructor-designers may encounter when attempting to teach from a user experience perspective and recommends that instructors normalize talk about double binds with peers as they consider how double binds might be addressed.

As a faculty member in a department that articulates in its very name a commitment to valuing human needs, I have a strong inclination toward pedagogical practices that prioritize what works best for students in the classroom. Elsewhere (Zachry & Spyridakis, 2016), I have described this commitment and how it helped shaped program and curricular decisions broadly in my home department. In this chapter, however, I will explore some of the inherent challenges in following this approach at a more granular level—that of an individual class. In

particular, I will explore the experience of attempting to place student needs and desires as a central concern in the design of a class.

The case for designing our courses in a way that is tuned in to the needs and desires of the students we encounter today is compelling. As advocates for designs that are responsive to the needs of the humans who will be using them, it seems necessary for us to create courses that are designed in this same way. Although as instructors we bring substantial training and often experiences to bear on the courses we offer, it remains true that our perspective does not represent the totality of perspectives in the interactions our courses facilitate. Effective instruction emerges from the artful design of learning experiences that should be meaningfully informed by attention to the people (students) we will engage in that design. As the work of many contributors to this collection suggests, a notable number of educators in our field seek to design their courses in a way that responds to the needs and desires of the students they will encounter. In this regard, it makes sense to think of educators inclined to follow this approach as instructor-designers following the priorities of a user experience approach. In short, instructor-designers use varied techniques to discover the needs and desires of the students with whom they interact toward the end of realizing instructional goals. As suggested in this volume, the techniques take many forms—formal and incidental. Together, though, they represent the impulse to observe and listen to expressions of students and to methodically adjust the design of assignments, classroom experiences, and feedback mechanisms to best support students in their use of our classes to achieve learning goals.

Listening to students clearly provides insights into what they need or desire to support their learning. At the same time, however, experienced instructors know that the insights students offer are often uneven, perhaps reflecting a singular perspective or not accounting for the overall learning context the instructor is working within. Some insights, nevertheless, are relatively easy to address and require negligible effort to implement. Addressing some other needs and desires, though, requires more substantive changes. In some instances, attempting to be responsive to the insights gained from listening to students places the instructor in a dilemma, such as trying to reconcile student needs/desires with contradictory institutional requirements. At other times, instructor-designers discover contradictory student perspectives that demand juxtaposing approaches. In such instances, listening to and being responsive to one or a few students can actually lead to choices that negatively affect the design of the class for the needs and desires of a different set of students in the same class. When the students in a given class represent a heterogeneous collection of stakeholders, an instructor who desires to adjust the design of a course to address their competing needs faces a dilemma. Consider, for example, an instance in which an instructor is asked by some students to drop their grades on a few of the early class assignments because they were confused when the term began, but now

feel like they are doing better. A different group of students in the same class objects, saying that they rearranged their schedules to devote time to those early assignments—something they would not have done had they known eliminating those assignments was a possibility. Yet another student mentions that the class syllabus documents those assignments and their point value. Any change to them, the student speculates, may be something worth talking to the educational assessment office about. Over lunch, a pair of colleagues disagree with each other when this story is shared. One colleague cites their routine practice of negotiating with students who have encountered difficulties, while the other colleague argues that the design of the class presented in the syllabus is a contract binding the instructor and students to a plan.

Such dilemmas—those in which an instructor attempts to be responsive to the wants and needs of students, but discovers contradictions within those expressions and in the broader context of stakeholders—deserve greater consideration by our field. In this chapter, then, the phenomena that I am particularly interested in exploring is that in which attempting to use feedback from students can lead to double binds for instructors who are attempting to design the best possible learning environments. To facilitate this exploration, I will draw on examples from a class that I routinely teach at my institution. As I present each of the three examples, my focus will be on my attempt to foster a classroom design that is responsive to the experiences of students. I will then expand on the theory of double binds in responding to the needs and desires of students when designing a class-based learning experience.

■ Capstone Course Sequence

To complete their undergraduate degree in Human Centered Design & Engineering (HCDE; my students' designated field of study), all undergraduates must undertake a capstone project. These projects are completed in a two-course sequence in the winter and spring quarters of the senior year. The projects are completed by small teams (three or four students) and are sponsored by an external entity (e.g., a business, a non-profit organization, a governmental office). In the winter quarter, students group themselves into teams and then, as a team, choose a sponsor. During this quarter, each team then focuses on exploring the design challenge related to the sponsor's needs, develops a human-centered design approach to addressing that challenge, and prepares a proposed work plan with milestones to be executed in the following quarter. In the spring quarter, the student teams execute their plan and then present their work to the sponsors and the general public at the department's largest annual event, the spring open house, which is held just a few days before graduation.

By design, many elements of the capstone experience are shaped by the students themselves. The students form their own teams based on the configuration of skill sets they desire; the teams pick their sponsored projects based on their

interests; and the teams devise their own design process based on their understanding of the challenge and how best to apply skills and knowledge they have developed during their studies. Over both quarters, student teams routinely interact with members of the instructional team (the lead instructor and a group of teaching assistants) to think through problems they are encountering and to receive feedback on the choices they are making at each juncture. Each quarter includes a mix of individual and team assignments (with team assignments being most dominant), and all the work is graded.

■ Illustrative Examples

I have selected three examples of feedback received from students over three years of offering the capstone course sequence. These examples are selectively pulled from many conversations over these years. Each is picked to illustrate a different type of the potential double binds that an instructor might encounter when attempting to teach in a way that is responsive to the desires of students.

■ Example 1: Evaluation

In the first year I taught the capstone sequence, the winter quarter class was offered as a credit/no credit course. The assignments in the class required students to analyze the design challenge presented by their sponsor, develop an appropriate design process to address that challenge, and then prepare a detailed plan to execute that process. This sequence of assignments is demanding, and the instructional team provides extensive feedback to the students. Near the end of the quarter that first year, the instructional team was somewhat perplexed by how casual students were in their execution of these assignments. For many of the student teams, the assignments were executed in a cursory manner with seemingly little attention being paid to the quality of thought as well as the writing. Toward the end of the quarter, I engaged a subset of the students in a discussion about why they were taking such a relaxed approach. Their consensus opinion was that they were taking a cost-benefit approach to time allocation: “You assume that what we are doing is our best work, but this course is not graded.” In short, they reported that they were allocating greater time to other courses that were graded and would affect their GPA and that they were taking a sufficing approach to this class that would earn them credit but consume no more time than necessary because they were otherwise too busy. They advised that if I wanted to see work more in line with expectations, then I should have the class changed to a graded course. After considering this input and what would likely be best for students’ learning experiences in subsequent years, I worked with the department’s curriculum committee to make this change the next year. Making this course a graded course that affected GPAs did result in substantially better work on the assignments in terms of completeness and

professionalism. However, this change in demand on student time also became the source of grumbling and even dissatisfaction in end-of-quarter course evaluations. In one evaluation, a student argued,

C/NC [credit/no credit] makes a lot more sense for this class. It's a 2cr class it shouldn't be graded. Especially for the amount of work that you have to put into this class in order to succeed. It's too much for 2cr.

Yet another student complained,

I think that there was a lot of confusion about whether the class was graded or not. Everyone I talked to seemed to be confused about this fact. I think that there was also no precedent/warning about how hard the first graded assignments were going to be, because everything before that was “if you did it, you got credit.”

For students such as these, implementing a course design feature suggested by students from a previous class immediately surfaced new concerns that countered the suggested feature in an unanticipated way. Clearly, within the broad student population, people held competing—perhaps irreconcilable—thoughts about how course evaluation should be designed.

■ Example 2: Equivalency

Across the years that I have offered this course, I have required student teams to have an official sponsor for their projects. Most students select their project from a catalog of projects that I have arranged with sponsors from various organizations and from a range of domains (e.g., consumer app development, surgical support devices, community planning, and toys to support emotional development for children). This requirement to have an external project sponsor is intended to facilitate learning about real project constraints (e.g., design politics with stakeholders, economic considerations, and risk-benefit analysis of design options) as well as to develop communicative skills when interacting with people outside the classroom (Ford, 2018; Ford & Teare, 2006). For many students, this requirement is appreciated and sometimes noted in end-of-term course evaluations: “I like having a project that is culminating of my HCDE education. I also like that we have real stakeholders involved and possible restrictions. It resembles the ‘real world’ better than other HCDE course projects have.” Each year, however, at least one student team questions the requirement, expressing a desire to pursue a design vision that they have imagined on their own. The desire of some students for each project to be unique sometimes shows up in end-of-course comments:

Everything was very formulaic for every different group. All

groups were expected to submit the same format of project proposal even if different sections didn't make sense. Rather than allowing groups to determine what is necessary and actually allow groups to form our own proposal, everyone was forced into a template.

When teams ask to be an exception to the class expectation that all projects have an external sponsor, I guide them to make arrangements with an external entity in their desired domain to become at least a nominal sponsor of the project so that they can complete the same sequence of assignments as their fellow teams. For example, I connected a team that wanted to work on directing prepackaged food waste on campus to local donation sites for those in need with a company working on technologies to use crowd-sourcing in guidance for waste disposal systems. Another group wanted to work on developing a progressive approach to culinary education, so I guided them to work with the proprietor of a local cooking school designed to engage millennials in recreational cooking. Without exception, these teams struggle repeatedly at different junctures in their work, encountering such tricky issues as initial problem definition, scale and scope of design, and identification of design options that work within realistic budgets and/or use contexts. Their self-arranged project sponsors are typically of little help when the teams must work through these issues because they are not invested in the project in the same way as the other sponsors.

■ Example 3: Expectance

As graduating seniors who are taking the capstone sequence in their final two quarters of their final year, the students in general feel very confident in what they know as they begin their projects. For most, the excitement of getting started on what will be their biggest project in the program is evident from the beginning. Recognizing this enthusiasm and hoping to make it work for the students in what is inevitably a longer and more challenging project than they anticipate, I attempt to design the class sessions in the first quarter to focus on work specifically related to their individual team projects as rapidly as possible. Consequently, all the teams are self-formed and paired with a desired sponsor within three weeks of the class beginning. After that, all class sessions are designed to facilitate hands-on design activities that support initial discovery and brainstorming, identifying and scheduling milestones for the projects, and detailing a plan to execute the project that the team buys into and that can be shared with the sponsors before our spring break and then the final quarter when the design process officially begins. The design of this first quarter capstone is shown in Table II.I.

Table 11.1. Course Schedule for HCDE Capstone Planning Course in Winter 2019

Week	Date	Topic	Activities	Assignments due
1	1/10	Syllabus review Capstone overview	Overview of the capstone courses and assignments	A1: About Me Slides A2: Personal Inventory Sheet
2	1/17	Project interests	Speedy introductions exercise	
3	1/24	Sponsored projects	Sponsor pitches	A3: Team Formation A4: Sponsor Ranking
4	1/31	Project topics/Design questions	Communicating with sponsors	A5: Team & Project Declaration
5	2/7	Project declaration	Team and project declaration feedback	A6: Design Research Review
6	2/14	How to develop your project intro and methods	Work session	A7: Project Introduction & Methods
7	2/21	Communicating project deliverables and focus	Project intro & methods feedback Work session	A8: Project Deliverables and Timeline
8	2/28	How to write a team contract	Project timeline feedback Work session	A9: Team Contract Draft
9	3/7	Putting together your project proposal	Team contract feedback Work session	A10: Project Madness Slide
10	3/14	Project Madness Presentation	Team project presentations	
F	3/21	Finals Week	No Class	A11: Project Proposal

The topics for this class and the sequence of assignments are designed to achieve the overall goals of 1) forming student teams, 2) pairing teams with project sponsors, 3) having the teams develop an initial understanding of the project design challenge, and 4) having the teams propose an informed process about how they will design and execute a user experience (UX) process to address that challenge. Some of the topics in the syllabus clearly correspond to things that the students have previously received instruction in during prior quarters. For this reason, each year, at least one or two student teams will make time to talk to me about being frustrated that I have shared with them a definition to clarify a term in an assignment or to provide examples of what has helped or hurt teams in past years. While many students in the class appreciate such insights (and will inevitably ask for them if they are not offered to the

class as a whole), one or two teams are clearly annoyed by such information and ask, “Why are you talking about things when we just want to be starting our projects faster?” Versions of this complaint are asked both in scheduled office appointments and on end-of-quarter class evaluations. For example, in one end-of-term student evaluation, one student complained about “lecture time spent on reviewing topics of HCDE we have already learned like the different parts of the design process.” In a different evaluation, a student lamented, “We know what the UCD process is. We don’t need lecture to teach us about these things.” At their core, these complaints cut to the very design of the class, indicating that even the most minimal instructional approach will work for many of the students, but not for all. A subset of the students in the class clearly benefits from hearing an explicit discussion of how what they will be doing over the next several weeks maps to concepts and techniques that they have encountered in varied classes taken earlier in the program. Since the teams in the class include mixes of students—some who do not want an explanation of how their capstone work is connected to things they have learned previously and some of whom strongly desire to have those connections drawn—I, as the instructor designing the class, face a decision in which some set of students is going to be less satisfied than the other. In this case, I err on the side of sharing more information to benefit those who want more (and may be in a team with those who want less). I do so knowing that a portion of the class will applaud the choice when they complete their evaluations and that a different portion of the class will complain strongly, such as in the quotes above.

Drawn from my teaching experiences over three years, each of these examples illustrates a variation on dilemmas that I have faced as I have attempted to integrate the experience of learners in these classes into its design. To think productively about these instances and how they might have implications for using a UX approach to class design, I see value in thinking about double binds in UX design. After offering this explanation of double binds, I will return to these three examples to illustrate with details how each of these examples exemplifies a type of double bind that we face as instructor-designers following a user experience approach to course design.

■ Double Binds

The notion of double binds realized through communicative interactions was first developed in the mid-20th century in the field of anthropology (Bateson et al., 1963) and has usefully been extended to studies of varied communication-intensive contexts since then. One such extension is the work of Conra Gist (2017), who uses the concept of double binds to analyze the experiences of aspiring teachers of color. She addresses the conflicted experiences of teacher candidates who “need to reconcile oppositional tensions between personal ties” related to their complex cultural identities as a person and “systemic ties,” such as those

associated with the profession and its institutions (Gist, 2017, p. 931). Focused on a different area of inquiry, Ronald Wendt (1998) uses the concept of double binds to examine the nonrational power dynamics that emerge from the communication dynamics in organizations that adopt a participative management approach. In a third example of how double binds have been used to conceptualize communicative interactions, Deborah Tannen (1983), in a presentation to the California Association of Teachers of English to Speakers of Other Languages, suggests that double binds are a common feature of cross-cultural differences in interpersonal communication.

Consideration of double binds in user experience (UX) studies has been more limited. Double binds have been casually considered by a few (e.g., Van Dijck, 2009) and have been used more systematically to consider the ongoing relationship between designer and users (Béguin, 2003). In a related strand of work, the framework of double binds has also been used to level a general critique (Khovanskaya et al., 2015) of Human Computer Interaction (HCI) frameworks that are not sensitive to critical considerations. In this chapter, I extend this notion to the design of learning contexts, using the three examples presented above. I will illustrate how accommodating the priorities of students discovered through conversation and course evaluations yields design priorities that place the course designer in a double-bind situation.

In the context of class design following a UX approach, a *double bind* is a situation in which the designer faces a dilemma due to competing demands. On one hand, the instructor-designer seeks to hear from students about their needs and desires as learners and to incorporate what is discovered into the design of the course. On the other hand, the instructor-designer is positioned within an institutional context that places its own demands (including educational policies and conventions), affecting what may or may not be possible or wise to do in the classroom. In short, the design space is not unconstrained. When the needs and desires of students are irreconcilable with the demands of the institution/profession, the instructor-designer encounters a double bind.

In the context of higher education, where faculty are often both instructors and the designers of the learning experience that their students will have in a given term, it is inevitable that they will experience double binds when taking a UX approach in their work. My three selected examples help demonstrate this.

■ Example 1: Evaluation

Deeply embedded in the logic of institutional-based instruction is the assumption that learning will be measured and verified. The practices of measurement and verification vary widely from one institution to another (and often even within a given institution), but instructors are almost always the agents that execute this institutional mandate. When acting as designers and following UX priorities, these same instructors will periodically hear from students that the standards for

measurement and evaluation should be altered. In my example 1, this recommendation came in the unexpected form of making the standards more demanding. In this instance, upon analyzing the costs and benefits of making such a design change, I decided to follow the institutional process to make the course graded (rather than credit/no-credit). The choice, however, was not clearly or necessarily the right one. To make the choice, I had to face the dilemma of upsetting some students who really counted on the class to be less demanding so that they could balance it against the other demands of completing their senior year requirements and also of upsetting a few of my colleagues. These colleagues had either taught the class previously or had intentions to teach it in the future, and this change represented a new set of requirements in that the work would have to be evaluated more rigorously. In short, teaching the class would now be more demanding. At the moment I was involved in balancing the needs and desires of some of the students against the needs and desires of other students and of other stakeholders, I acutely felt the pressure of this double bind.

■ Example 2: Equivalence

Connected in many ways to the standards of evaluation is the assumption of equivalence in instructional contexts. Skilled instructors are often artful in using the available degrees of freedom they have in the classroom to adjust learning experiences so that they serve the needs of their students to the greatest degree possible. Sometimes, however, students will express desires that cannot be completely reconciled with the deeper logic of a course design. When seeking to find design accommodations that will address such student desires, instructors can encounter the double bind of allowing something that students anticipate will fit their needs but also making the class expectations equivalent. In my example, the accommodation I have offered is clearly not ideal and is felt as a dilemma in each juncture. Allowing students to pursue a project of their own imagination by adding on a nominal, recruited sponsor to ensure that the course requirements are roughly equivalent is a compromise solution to a double bind. On one hand, I could deny the students' requests to pursue a passion project of their own making and thereby make all the project teams have an equivalent relationship to their project sponsors. Conversely, I could simply comply with the impassioned pleas of a few student teams to be guided by their own interests and thereby allow inequivalences to proliferate across the course assignments. My solution to this double bind—allowing students to pursue a passion project while interacting with an add-on, nominal sponsor—serves a pragmatic need, but predictably yields a result that is less than ideal for the students. Although I can anticipate such an outcome and offer the students a reasoned prediction about the consequences of their choice, one or two teams each year choose to learn if I am right by trying out the compromise option.

■ Example 3: Expectance

When students arrive in our classes, they have expectations about what they will encounter that are formed from varied information resources and are undoubtedly different from one student to another. Information sources as varied as course catalogs, the perspective of student advisors, experiences shared by peers, and even general lore within the degree program are shared unevenly by students. Further, different learning styles and even personality types play into the varied expectations that students bring to any given class offering. In the example of the senior capstone class that I am drawing on in this chapter, it is also the case that student expectations are shaped by the realities of this juncture in their life: they are literally at a transitional moment when they are finishing as a student and about to embark on whatever their next known (or unknown) venture will be. Most are reasonably anxious and apprehensive. For many of them, the prospect of engaging in a large-scale project in which they can demonstrate their skills and knowledge with a team working with an external sponsor is exciting. For a few others, the realization that this project is the end of their degree and that there are many things they do not yet know and that the horizon holds many unanswered questions creates frustrations that surface in capstone. As the instructor of the course, with several years' worth of experience in both teaching and non-academic professional work, I have thoughts about things that would be useful for students to consider in order for them to get the most benefit out of their capstone project experience. Many students want such a perspective layered into conversations during class meetings. Without exception, though, each year, there are some students whose expectations are that this course should be more singularly about them demonstrating what they have learned during their previous years of coursework. In essence, they expect the course to be about achieving something by pure force of action sans any instruction. Such desires are made explicit in private conversations or sometimes in end-of-course evaluation comments. The double bind I face as the instructor-designer of the course is how best to make the course work for user-learners with such strongly held desires. The somewhat unsatisfactory solution I have arrived at is to reduce most oral instruction to a few strategic forms: explicit, detailed assignment sheets, brief allusions to such details in discussions with the class as a whole, and strategically timed mentoring discussions with teams who are receptive to such ideas during the quarter. Sharing instructional information in this way is far less efficient and even effective than a more centralized mechanism, but it is more complementary to the strongly held expectations of some students.

The details of these three examples are specific to my institutional context, but the types of double binds they represent are almost certainly recognizable to most readers. I could readily point to instances of such double binds in other courses I have taught over recent years, as I anticipate nearly any instructor-designer could.

Recognizing the presence of double binds in course designs following a UX approach has potential value in allowing for instructor-designers to talk across their individual experiences. This framing clearly has a relationship to notions of *constraints* and *competing interests* in design, but it is more specific. In particular, this framing places an emphasis on the conflicted, felt experience of instructor-designers. That is, double binds are experienced personally as tensions in our identity as we occupy our professional/institutional roles and also seek to empathize with the experiences of our students and empower them to contribute to the design of their education. As a community, we need a language for talking about these personally experienced tensions, enabling us to share and compare such moments.

It is important to clarify here, though, that double binds are present across human interactions. Indeed, the original identification of double binds emerged from psychology-based assessments of family relationships. Subsequently, double binds have been identified in multiple forms of interpersonal communication and in broader communicative contexts. We might reasonably anticipate that when we as designers open our processes to input from users and are truly committed to integrating such input into our design choices, double binds will proliferate. Following this process as instructor-designers who maintain professional commitments to our host institutions as well as conventional knowledge gained from lore handed down in our profession and our own wisdom developed from prior teaching experiences, we should expect to inevitably and repeatedly encounter double-bind dilemmas when we seek out and attempt to use input from our students.

Double binds are not something that we should expect to always be able to design our way around—even as we have a language for naming them as they occur. Double binds are manifestations of competing value systems as we bring our students into potentially transformative contact with the design of the classes they inhabit. As we open ourselves to interactions around the artful choices we make about our classes, those interactions will necessarily involve a range of dimensions, including the political, economic, social, and personal that will compete for priority in our design choices. Such competitions will be experienced as *mild annoyances* and as career-altering dilemmas. We should expect double binds to be part of the essence of our work, not something that can be resolved for all time with a single, clever design decision.

My purpose here is not to solve these three forms of double binds (or the many others that we face). Instead, I want to provide a framework that facilitates naming and discussing a phenomenon that we experience as instructor-designers who want to embrace the values of UX and attend to the needs and desires of learners.

■ Conclusion

This chapter identifies three types of double binds that an instructor may encounter when attempting to teach from a user experience perspective. Other experiences from this class as well as other classes I have offered would provide

countless other examples of double binds. Inherent in our commitment to follow the priorities of UX when designing our courses is the experience of double binds. Such double binds are not signs that our course designs are flawed—that we have somehow come up short in our understanding of our students and some set of readily identified design requirements. Instead, I would advocate, double binds are an inherent part of the experience of being a committed instructor-designer. Indeed, if we go too long without experiencing a double bind, we might begin to question if we are truly hearing the students we are seeking to understand. As a broad community of instructors, I think we might begin to routinely exchange stories about the double binds we have experienced. We might begin to share mutual wonder and perhaps a few laughs about these experiences in our dispersed educational settings. In essence, we might normalize talk about double binds in our collective experience as instructor-designers.

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