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Cross-Cultural UX Pedagogy: A China–US Partnership

Ziqing Li[1], Colin M. Gray[1,2], Austin L. Toombs[1,2], Kevin McDonald[1], Lukas Marinovic[1], & Wei Liu[2,1]
[1]Purdue University, West Lafayette, Indiana, USA; [2]Beijing Normal University, Beijing, China
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The recent emergence of new undergraduate and graduate design programs with a focus specific to User Experience (UX) offers new opportunities to engage with the complexity of these educational practices. In this paper, we report on a series of ten interviews with students and faculty to describe cross-cultural connections between two UX-focused programs, one in China and one in the United States. Our study includes the perspectives of students who engaged in intercultural UX experiences, as well as the perspectives of the faculty who designed those student experiences through an intercultural partnership. We report on how each program was created, developed, and iterated upon, describing program goals and student experiences across both programs from student and instructor perspectives. We demonstrate the complexity of UX educational experiences on an international scale, concluding with opportunities for intercultural engagement and the potential for links among education, profession, culture, and pedagogy.

Keywords: UX education; design education; comparative education; cross-cultural UX

Introduction

Design education is rapidly changing (Faiola, 2007; Meyer & Norman, 2020), with new disciplines of design leading to increasingly powerful potential for impact on industry practices. This shift in design disciplines was anticipated, in part, by scholars such as Buchanan (1995) through the concept of the "four orders of design," which implied a progression beyond design disciplines that focused on communication or physical products to the design of interaction and strategy. However, the impacts of this shift on traditional and emergent disciplines alike has resulted in substantial volatility (Kou et al., 2018). In traditional design disciplines, studio education practices have changed little since the Bauhaus (Cennamo, 2016), and the introduction of design disciplines that operate at the intersection of multiple existing disciplines challenges how studio education is constructed, with whose knowledge and instructional practices, and at what scale. In this paper, we will focus on the emergence of user experience (UX) design educational practices in two culturally and programmatically distinct programs.

With this shift in design disciplines and educational practices in mind, new areas of educational research have also arisen to support interdisciplinary framings of design work. In relation to UX education, human-computer interaction scholars are increasingly interested in studying the shape and form of educational experiences, including work on "global curricula" (Churchill et al., 2016; St-Cyr et al., 2018), instructional approaches and pedagogical models (Faiola, 2007; Oleson et al., 2020), key concepts and educational barriers (Kharrufa & Gray, 2020), and means of engaging with cultural and regional difference (Abdelnour-Nocera et al., 2012; O'Leary & Turner, 2020). Design approaches, often coinciding with studio-based educational approaches, increasingly drive HCI educational experiences (Blevis et al., 2004, 2007; Gray et al., 2020; Greenberg, 2009; Koutsabasis & Vosinakis, 2012; Reimer & Douglas, 2003). The role of different communities of interest in relation to design education adds additional complexity, but also outlines new opportunities for engaged scholarship and pedagogical intervention across multiple fields. Emerging design disciplines such as UX have connections to traditional design disciplines both in terms of studio pedagogy and conceptual/theoretical foundations, but also take on new forms of disciplinary complexity that are chaotic, ill-defined, and dynamic (Kou et al., 2018; Lallemand et al., 2015).

The contributions of this paper are three-fold. First, we provide a description of two recently implemented programs with a focus on UX education, contributing to a growing body of program-level literature. Second, through a range of educator and student experiences, we identify characteristics of pedagogical experiences across dimensions of culture, geography, professional status, and program design, demonstrating the complexity of creating partnerships to support design education practices on an international scale. Third, we offer a program-level view of UX educational structure, demonstrating the links among education, profession, culture, and pedagogy, pointing towards future innovation opportunities in design and UX education.

Related Work

Engaging Transdisciplinarity in Design Education

While many traditional design disciplines still draw heavily on studio-based traditions and themes of disciplinary knowledge that have roots back to the Bauhaus or École des Beaux-Arts, efforts to define inter- and transdisciplinary engagement have been the focus of many emerging design disciplines. The introduction of new approaches is needed to support innovative practices (Meyer & Norman, 2020), but brings with it the complexity of selecting among multiple sources of disciplinary knowledge and traditions (Faiola, 2007) and then building alignment across program staff (Exter et al., 2020). The Design Enterprise Model from Faiola (2007) proposed integration of knowledge domains that included social (human and culture), design (graphic and interaction), business (market value and return on investment), and computing (building and testing), with attention to integration across these domains through theory, application, and management. This model mirrors contemporary transdisciplinary engagement in UX design practice, with connections across multiple domains of disciplinary knowledge, such as psychology, computer science, anthropology, cognitive science, design, and ethics. This multiplicity of knowledge domains points towards complexity relating to epistemological challenges in forming coherent educational experiences, and complexity relating to the identity construction work students need to undertake to effectively work within and across disciplines (Adams et al., 2011; Coso Strong et al., 2019).

International Design Education and Decolonization

Design work is increasingly global, and students' ability to practice building connections across multiple cultural and geographic spaces is a valuable competency to support their future work. While the idea of international partnerships in design is not new (see Bohemia, 2010), the role of partnerships in volatile design fields such as UX present different potential challenges and opportunities as compared to traditional design or engineering disciplines. For instance, in reports of collaboration in the context of industrial design (Kaygan et al., 2019; Van Boeijen & Stappers, 2012), the primary barriers to partnership and engagement focused on issues of culture and collaboration modes, with differences due to disciplinary alignment rarely reported. In contrast, recent work from an HCI and UX perspective reveals differences in Asian (Dey et al., 2015), African (Bidwell, 2016; Dey et al., 2015; Lazem & Dray, 2018), and United States (Blevis et al., 2004; Churchill et al., 2016; Greenberg, 2009) framings of educational practices. In understanding differences in alignment with differing disciplinary traditions and cultural expectations, we align our work with prior interests in de-settling and decolonizing design education practices (Abdelnour-Nocera et al., 2012; O'Leary & Turner, 2020), where we view the connections among multiple partners across cultural, geographic, and disciplinary values to be productively in tension in ways that must be actively communicated and negotiated.

Method

This study spans two UX programs on two different continents, serving students at different higher educational levels, but with the same ultimate professional destination: UX practice. Our two contexts include:

- **Purdue UX:** The undergraduate UX Design program is located at Purdue University in the United States. This program was launched in 2015, and is one of the only comprehensive programs of its kind in the United States that is located neither within a department of Computer Science or HCI, nor within a traditional School of Art and Design (Vorvoreanu et al., 2017; Gray et al., 2020). While this program has an associated graduate-level concentration in User Experience, the focus of this analysis is on the undergraduate program.
- **BNUX:** The graduate UX program is located at Beijing Normal University in People's Republic of China, and is part of the Faculty of Psychology. This program was launched in 2016 and is the first program of its kind in China (Zhu et al., 2021).

These two programs have a history of cooperation and student exchange since 2017, including: the creation of a dual-degree Master's program; guest instruction of an educational module in China by instructors from Purdue UX; visits by students and instructors to Purdue UX from BNUX; students from Purdue UX participating in summer instruction at BNUX; and one student participating in the newly formed dual-degree program in 2020. These interconnections between the two programs provided us a space to solicit and describe a range of student experiences that were anchored primarily in one of the two programs.

Data Collection

We constructed an interview protocol using a critical interview approach (Carspecken, 1996), with the goal of describing the pedagogical experience, cultural expectations and norms, societal positioning of the programs, and educational outcomes from the perspective of the students. This project was approved by the Purdue University Institutional Review Board, and all research team members participated in general IRB training as well as sensitization training specific to the project focus. We structured the set of interviews around three topic domains: 1) instructional methods and program structure; 2) student goals, expectations, and experiences (particularly as they related to different experiences across the two programs, if applicable); and 3) perceptions and societally-grounded history of UX as a discipline. Within each of these topic domains, we identified potential follow-up questions as a research team, benefiting from a range of perspectives—including cultural and ethnic origin, gender identity, formal UX training, academic role, and degree of familiarity with each of the programs.

We interviewed seven student participants who had interactions between the two programs over time. Some students participated in a single intercultural interaction, while others participated in multiple interactions over more than two years. Due to the relatively small sample of students, we will not provide a comprehensive list of participants and experiences to reduce discoverability. However, we provide below a summary of the experiences of our participants.

- one dual degree student, originating in BNUX who subsequently studied at Purdue UX
- two students from Purdue UX who participated in summer research activities at BNUX
- three students from Purdue UX who participated in guest instruction at BNUX by Purdue UX instructors (one of whom began their interactions with Purdue UX after their BNUX experiences)
- two students from BNUX who participated in guest instruction at BNUX by instructors from Purdue UX

We augmented these student experiences with interviews from the program instructional teams, including two faculty from Purdue UX (interviewed by student authors) and the lead faculty member from BNUX (interviewed by the other authors). Three program faculty (Colin, Austin, and Wei) are also authors on this paper and have committed to a reflexive and transparent evaluation of their pedagogy and program decisions over a three-year period.

Data Analysis

To reflexively build upon the data we collected, we sought to engage in regular reflections as a research team, including discussing new patterns of behavior or themes of student experience after each interview concluded. Through these series of conversations and the creation of research memos, we began to identify and document key aspects of cross-cultural experience that became salient. We then augmented these more holistic means of reflexive engagement on a project level with open coding on each interview transcript. Three researchers engaged in this open coding effort using Braun and Clarke's reflexive thematic analysis approach (Braun & Clarke, 2019). Because of the lack of strong existing research to guide this inquiry, we used sensitizing concepts such as studio pedagogy (Boling et al., 2016; Cennamo, 2016), aesthetic learning experience from Parrish (2009), and comparative education (Bray et al., 2014) as points of departure. These elements were then used to inform aspects of student experience that emerged across both programs, unique to one program, or existed in opposition to each other; these themes were then elaborated in relation to educational structures, the nature of UX as a profession in each national context, cultural norms and expectations, and pedagogical imperatives.

Collaboratively Building the Program Narratives

This project began as a way of encouraging intercultural engagement in the wake of the COVID-19 pandemic. We had originally intended to participate in a Purdue-sponsored study abroad trip to China in Spring 2020, but due to the pandemic, this trip was cancelled. Instead, we used this project as a means of identifying and reflecting upon aspects of intercultural and cross-cultural approaches to UX design, with an explicit goal of better understanding the overlaps and tensions among our respective culturally bound approaches to UX education in the United States and China. Because both programs are only now beginning to stabilize in relation to program growth and the construction of core coursework, the success of our individual programs and the dual-degree initiative that connects them is only now emerging. Both programs enjoy good placement rates for students in industry, but since each program serves a particular national need for UX designers, it is difficult to directly compare outcomes at this stage due to the differing "volatility" of UX as a discipline in each country context.

As a team, we represent diverse perspectives with relation to training, cultural experiences, and levels of education. The program faculty have all earned PhDs in programs with a substantial HCI framing, and each of these programs also included an explicit focus on design. All program faculty also had experiences in learning design with a studio pedagogy approach (Boling et al., 2016; Shulman, 2005), including the presence of key studio elements such as project-based learning, critique, and reflection (Cennamo, 2016). The students on the research team included two students formally trained in UX in the undergraduate program at Purdue UX (Ziqing Li; Kevin McDonald), as well as one student who was trained in information technology and began pursuing a graduate degree at Purdue UX after data collection was complete (Lukas Marinovic). One of the three undergraduate students (Ziqing Li) and the program faculty (Wei Liu) from BNUX are originally from China, and both have received substantial training in studio-based design in a North American or European context.

A Story of Two UX Programs

We document the origin stories of Purdue UX and BNUX, identifying key pedagogical distinctives, framings of UX and HCI knowledge, desired student experiences, and known and emergent challenges in building a new program in a rapidly changing area of practice. We then share students' experiences, revealing spaces where there are links or disjunctures along dimensions that include: educational system requirements, notions of UX as a profession in each national context, impacts of cultural norms, and pedagogical structures and outcomes.

Purdue UX: Envisioning Undergraduate UX Education in the United States

In 2015, multiple faculty were hired at Purdue University with the goal of creating the first comprehensive undergraduate degree program in UX Design in the nation—from scratch. Building on the then still emerging promise of UX as a discipline and profession, our goal was to create a studio-based program to support a wide range of UX-related specializations in a project-intensive, collaborative environment with close ties to industry. As Colin noted, this "was an audacious plan [... because] we were really some of the first people to be doing this kind of thing at the undergraduate level. And so, this was another huge risk […] this is why people had sort of steered away from undergraduate UX education for so long." Purdue UX strategically recruited faculty with expertise that represented "different ends of the spectrum," including faculty members representing perspectives from computer science, graphic design, industrial design, information visualization, and communication. Leveraging these multiple perspectives, with the capability to create a new set of integrated courses from scratch, "we were able to build something from the ground up to scale really, really quickly that would normally take a number of years."

In parallel with our goals to invent a robust approach for undergraduate UX education, the instructional team also leveraged extensive support from the college, with the stated goal of the dean to "revolutionize teaching at the undergraduate level." With Colin playing a lead role as program designer, the UX Design major was the first in the college to be designed with "a new set of pedagogical principles and approaches and modernizing teaching approaches" in mind, including a project-based structure, horizontal and vertical integration to maximize the overlap of student experiences, and experiential learning with industry partners, among other goals. The program faculty sought to maximize third-wave HCI thinking in creating a design-focused program, with the initial goal of identifying: "[what] experiences do we want the students to remember and to take with them more than any content that they might remember?" We also began this venture with a lack of clarity surrounding the readiness of the job market to accept undergraduate students with a UX degree, where master's students had historically been hired, and whether undergraduate students would have the competency and competitiveness to succeed without prior disciplinary training (one of the suggestions of the 1992 SIGCHI Curricula Report; Hewett et al., 1992).

Our curricular goal was to provide a broad foundation, while allowing for students to build specialization in areas where they had interest. To accomplish this goal, the undergraduate students in this program enroll in two parallel studio sequences. In the first set of studios, students progress through studios numbered 1 through 5, each of which has a broad area of experiential focus (e.g., “foundations,” “screen,” “cross-channel,” “strategy,” and “specialization”). While each studio engages in this overarching focus, the pedagogical themes presented above are revisited throughout the entirety of the program. In parallel with these cohort-specific studios, the students are also enrolled in another studio where they work in teams on problems and project prompts developed by industry partners and external collaborators. Students take this studio course multiple times, with lower-level students taking on an intern or trainee role, mid-year students engaging in robust design and research work, and upper-level students taking on increasingly more facilitator-oriented roles as they progress through the sequence. The goal of combining vertically integrated (students taking a course in which all levels of UX students are enrolled) and horizontally integrated (students taking both a cohort-specific studio and the program-wide studio at the same time, each semester) courses supported an early goal we had identified: “that we want these students to feel like they inhabit the role of a professional as quickly as possible in the program.”

The program quickly grew from 15 students in Spring 2016 to 50 students starting in Spring 2021. The supporting course experiences grew alongside the students until Spring 2018, when the vertical integration of three undergraduate cohorts was complete. Industry partnerships were built over time, and began to stabilize as students graduated, joined companies, and were able to support industry projects themselves. The studios have benefitted from a loose organizational structure that allows content to shift across experiences or change entirely as business requirements and technologies change. A spiral structure ensures that students work towards mastery across strands of knowledge multiple times, supporting their current and future success as practitioners.

BNUX: Creating the First Graduate UX Presence in China

In 2015, the Dean of the Faculty of Psychology at Beijing Normal University initiated the creation of a new program in Applied Psychology, with one area in UX design. The dean “had a vision of interdisciplinarity and globalization” with the application of psychology as a “very important” and strategic area of focus, culminating in a “vision to apply theory into practice.” From the beginning, this program came together at rapid speed. While the program was founded in July 2015, they only started recruiting students and faculty in the end of 2015. This program reflected a growing interest in UX in China which paralleled a lack of academic programs: “UX in industry began […] in 2000 in China, but in academia there were [no programs]. There was no program called UX. There were programs called interactive design or multimedia design, but [… UX] was only a direction of Master’s education.” Thus, from the beginning, the UX-focused program in applied psychology was unique—“if you look at the market, if you talk to the undergraduate students, UX is a popular field of study, but they can only find BNUX.”

To staff the program, the original goal was to recruit an older professor with substantial research experience to lead the new program, but “they couldn't find anyone” matching this description. Instead, Wei was hired due to his credentials as the “first Chinese guy to get a PhD on user experience from overseas”—he had recently completed a PhD at TU Delft and was quickly hired to lead the program. “So in 2016, September, the first cohort was there. And I was onboarded on August 31, 2016. It was a rush.” One of the first issues was to define the educational approach; Wei had worked at other universities in China, and for even the top universities, “their way of doing education is a bit old.” He built upon his involvement in project-based and studio education at Delft, drawing on course experiences in user empathy and interactive technology design to define the pedagogy for BNUX. Because the UX program was based in psychology, Wei also used a convergent approach to identify the overlaps between traditional interaction design areas (e.g., multimedia, art, engineering) and psychology with an “approach [that] is really different.” Psychology became the foundation—where “only when you understand people can you do things for people and build empathy.” Building upon psychology, BNUX could exploit common gaps in the field of psychology, such as a “lack of technology or science of engineering thinking.” This interdisciplinary mix became a unique blend of psychology, design, and human-computer interaction approaches that sought to connect to industry needs in China. These goals led to the creation of three clear tracks: user research, project management, and interactive design.

Industry support and engagement was also key to BNUX's early success, with the goal of promoting “win-win collaboration.” Multiple companies engaged in these partnerships across a range of industries, with the capability to arrange projects that had both educational and professional utility. However, these corporate partnerships also came with a risk—“since most of most of the [students'] jobs come from their undergraduate study

[…] they had not formed a good [pattern of] working with companies[… and] sometimes they would ruin the collaboration.” Thus, while the industry relationships sustained parts of the BNUX curriculum, these partnerships created new risks that had to actively be managed. This utilization of industry support—in conjunction with the identification of key collaborators from other parts of the globe—helped Wei to mitigate a primary threat of a lack of trained Chinese faculty. While psychology-focused courses were taught by top-rated professors in China at BNUX, Wei used his “relationship or friendship in the industry or with global partners” to locate expertise within China and across the globe. BNUX quickly built partnerships to cover key parts of the curriculum, including user interface design, tangible embodied interaction, user research, engineering psychology, and usability engineering.

The program began at 65 students per cohort with over 40 undergraduate backgrounds represented and has since grown even further to over 70 students per cohort. The supporting course experiences range widely based on the utilization of faculty from other institutions around the globe or members of industry, and coursework is typically undertaken on the weekends, while students work in placements, internships, or other research projects during the week. Even while the program fee is one of the most expensive in China, hundreds of applicants apply each year for the space-limited program, with most graduates paying off the two years of high tuition with the proceeds of their salary from their first year after graduating.

Student Experiences in Cross-Cultural UX Education

We will summarize some of the key themes from our student participants with additional context from the program faculty. Our goal is to identify areas of commonality in approaching UX, while also demonstrating tensions and opportunities due to student expectations, cultural norms, and differences in job roles.

Impact of Culture on Experience

Students mentioned numerous challenges with engaging in a studio-based classroom environment—a pedagogy shared by both Purdue UX and BNUX. While coursework in the United States increasingly includes “active learning” techniques to encourage cooperation and collaboration, Chinese higher education is still largely focused on lecture-based coursework experiences. In addition, cultural differences in power distance and expectations based on instructor role also presented tensions when comparing the two program experiences. Both programs addressed these tensions in different, but complementary ways. At BNUX, the students came in with the expectation that things would be similar to their previous course experiences where the instructor was at the center of the classroom. This environment was described by Wei as “a bit old; […] it's always like a blue background [with] white text, and the old professor can stand in front of one slide talking for 40 minutes.” This typical mode of education came into tension with the goal for students to participate in a studio-focused program that was collaborative and highly communicative. Wei leveraged his PhD work at TU Delft, referencing his desire to try out a studio-based approach in China: “I know [studio] works well in the Dutch or in the Western system. And I don't believe Chinese people cannot do so. I don't believe Chinese companies cannot do so. So I just want to try and see to find out.”

However, the studio approach presented challenges to students as they learned to adapt to this new educational mode. Because China is a high-power distance culture, students expect instructors to provide parent-like guidance and give clear instructions—a level of direction that is atypical in a studio. One student with experiences in both BNUX and Purdue UX characterized the instructional differences this way: “BNUX is more hand holding, whereas Purdue UX is more like guiding you through stuff. […] These structures are here for you to cross this river, and BNUX instructors are just literally gonna hold your hand and cross the river together. But [at Purdue], instructors are actually on the other side of the river, but telling you how you could build a boat and cross it yourself.” When engaging in collaborative work, students had to learn how to organize themselves in teams and work with other students that had widely different educational backgrounds. In what is typically a flat hierarchy of students, project teams appointed a “leader” to organize when and how to make key decisions, with one student explaining: “We just share our opinions of our ideas and our leader make[s] the final decision.” Based on experiences with an American team, another student felt that “American students are more used to recognizing each other. After each team member talks about their own ideas, the American students always say, ‘I like your idea; What is this; What I like about what you just said’ and I think it's really amazing. You will not hear that from a Chinese student and in a Chinese team”, since in Chinese context, students are less likely to use direct verbal compliments to indicate approval.

When students interacted with instructors from Purdue UX, they found that “the major cultural shock [was] the difference from the power distance”—adding difference in cultural expectation of interaction to the interactive expectations of the studio. When contrasting studio experiences from a Chinese versus American perspective, one student reflected on the unique cultural challenges of a Chinese studio environment: “I [think it] is due to the cultural differentials, because I think Americans are just more open or more comfortable with speaking up.” To help students adapt to the dynamic mode of engagement in a Chinese studio classroom, “BNUX [instructors] would encourage us to speak up, to do as many presentations as possible to break us from the kind of constraints we put on ourselves.” Another cultural expectation was the centrality of the instructor in gaining employment in a Chinese context: “the mindset [that] you'll need to have a network with your professor to get a job is heavily rooted in some other people's mind. And it's like a norm for people.” This expectation differed from experiences at Purdue, where instructors encouraged students to network on their own; as Colin stated: “our assumption is students are the ones doing the networking to find the right people, not me connecting them with the right people.”

One final cultural issue that emerged frequently was the nature of work-life balance and work ethic, as compared across cultural contexts. From a Purdue perspective, one student from China felt that a significant factor was the “time constraint—we have four years or under four and BNUX students] only have two years and they only studied during weekend. It imposed a lot of stress on them. And then during those two days they need to do a lot themselves. And I would say—in undergrad, I feel like I'm a UX major student, but I also have a lot of things going on and my life is always other things, instead of just like UX.” In contrast, BNUX students took on a common approach to defining a strenuous workday known colloquially as the “996” (9am to 9pm, six days a week): “then because a work schedule in China is like 996 and I must adapt to a schedule[...] we do this in the US too when it's the end of the project.”

Interaction with Industry Partners

Many students expected good job opportunities in exchange for the high tuition of BNUX and planned to join technology companies after graduation. This goal was supported by extensive industry engagement in the program through different forms of paid and unpaid project work for governmental and industry partners. One student reflected on this partnership: “After I joined BNUX, I found there were some projects collaborating with real companies, so I was not just learning by class. I was also learning by collaborating with people from companies. That was something beyond my expectations.” As Wei elaborates, these industry opportunities aligned with the capabilities and goals of the program, even exceeding the capabilities of many consulting companies: “My approach is that I will talk to [industry partners] like this: Our faculty knows how to do qualitative study. We have equipment. We have professors, we have good students. And we have good partners like Purdue UX. And then we are multidisciplinary. And we can help you with that.” However, students noted that they were often “assigned to the kind of projects that's very time consuming. [Companies] value the efficiency and effectiveness and minimizing the cost. [... companies] dedicate that work to academia and to finish it for them because [companies] just don't have the time and the money to do that.” Additionally, students had less freedom in deciding the project direction on these quasi-consulting projects, with some students feeling like they were “working” instead of “learning and exploring.” Even though these projects were time intensive, students at BNUX found that when “applying for jobs, [company sponsored projects] are still better projects, or the more useful projects compared to the things we gave in school, to the recruiters at companies.” The industry focus also engaged students in thinking about business value as well as flexible use of methods: “We […] could do anything and use any methods we want [with class projects]. But when we do projects with companies, we need to think as a system, like our way to think from the business perspective […] how to make profit.”

The approach to industry engagement at Purdue UX was focused on vertically-integrated course experiences, leading to less flexibility in out-of-class research partnerships, but providing enhanced opportunities for leadership and engaging in teamwork with students from multiple levels with less separation between “learning” and “working.” Students from Purdue UX reported the need not only to consider leadership as a chance to delegate tasks, but rather about “need[ing] to communicate [...] and inspire people to do things you need to do. It's not just about assigning people to do stuff.” The broader base of vertical integration—stretching from freshman to graduate levels—also provided multiple opportunities to learn from others; as one student stated: “I just learned that you don't need to be perfect [to be a leader]. It's okay to learn from classmates even if they are just freshmen who are in a lower grade than you.” While these projects in Purdue's industry-focused studio provided a somewhat balanced work and educational experience for students, these work-like experiences are still quite education-focused and less representative of real-world work experiences when compared to BNUX's industry partner projects.

Program and Course Expectations

Students in both program contexts expected to learn and apply knowledge from psychology and other disciplines in the creation of real things. While psychology was one of several disciplinary perspectives at Purdue UX, due to the applied psychology focus of BNUX, this area of knowledge became more central to curricula and student expectations; as one student shared: "psychology is the basic and something about designing how to use psychological knowledge into design into real things." Other students came into BNUX with the expectation that they would learn about design, with a focus on visual approaches and building apps, but later realized there was a stronger focus on design research methods: "Our teachers teach us a lot about user research, and brainstorming […] but not as much as graphical design in prototyping or in interactive design". From a Purdue perspective, students came in with the expectation of a focus on design thinking and marketing strategies, but later realized that the program focus was on "bring[ing] the best value you can to the people and the stakeholders you're designing for."

Because BNUX had to grow in place with large cohorts of students compared to Purdue UX's more gradual growth, the course sequences also resulted in different student expectations and experiences. Students felt that the consecutive studio sequences offered by Purdue UX tended to encourage more in-depth learning and understanding, but the BNUX program courses were offered by professionals with various backgrounds, adding additional richness and diversity beyond the knowledge of the core program faculty. One student discussed the opportunities and challenges of the BNUX approach to course sequencing as follows: "I'd say from the education side, the classes are not [created in a] consecutive way—especially UX classes because they have professionals on the psychology side, and then professionals in CS […] behavioral psychology, and UX specialists. [… Faculties and visiting instructors] travel around the world to 'run the errands,' so BNUX students learn a lot from their peers and [from] working with companies." In contrast, Purdue UX faculty had less responsibility to form extensive international partnerships early in the program development and were able to spend more direct teaching time with students over a more traditional 16-week semester format.

Potential Job Roles

Job roles and expectations converged across both programs, but with some differences in each cultural context. From a BNUX perspective, one student reported that most of their classmates had gone on to work as a UX researcher or product manager after graduation; however, a minority of BNUX students prioritized visually focused design jobs, which are often labelled with roles such as "UX Designer" in China. Students appeared to be aware of tensions and differences in job roles across user interface, research, and business-related careers, recognizing that different skillsets and interests were required for each role. User interface often intersected with "UX," research jobs required both traditional qualitative skills as well as experimental psychology knowledge, and product management jobs required business acumen. BNUX graduates were well-prepared for UX careers in China, and due to international exposure to Europe and North America they experienced during their program of study, some students may also fare well in building a career outside of China—particularly if they engaged in longer terms of exchange in other countries.

A Purdue UX student referenced some differences across the two cultural contexts, explaining: "The UX education I received enables me to do multiple kinds of jobs. So even though I have lived in the United States for such a long time, if I want to adapt to the work setting in China, I am still able to do that and try different roles instead of UX Design." In contrast, UX jobs in the United States more commonly used the term "UX" without positioning the work as solely user interface focused, often representing generalist roles with responsibilities that include research, prototyping, and evaluation work. UX researcher roles in the United States similarly had less focus on psychology and testing, with these tasks often being commonly addressed in related business-focused roles that included product management. Students straddling both countries and programs recognized the differences in roles in both contexts and appeared able to reorient their skills to appropriate job positions depending on their career aspirations and location preferences.

Implications and Future Work

We have described a range of hidden assumptions that can substantially impact the performance and experience of individual pedagogical decisions, and the constitutive role of these individual engagements that point towards the overall educational experience. This work implies the need to identify opportunities for educational partnerships that enrich student experiences and future industry success that are culturally and locally bound, while also recognizing the role of subverting or extending institutional support and structures that guide or control the form of these pedagogical experiences. This finding points toward the need for future work that engages with the experiential qualities of HCI and UX pedagogy, representing a shift from past approaches that have largely focused on objective and visible elements of education, such as curricula, required readings, and project prompts. More research should identify the implicit norms of existing curricula, using action-oriented research methodologies to propose new student experiences in UX-focused programs.

Future work should also continue to identify the cultural boundedness and situatedness of HCI knowledge, instructional strategies, and pedagogical philosophies. Building on the call to decolonize HCI and design (Abdelnour-Nocera et al., 2012; Tlostanova, 2017; Tunstall, 2013), research should clarify the role of context, subjectivity, and culture in UX and HCI education, pointing towards the need for a multiplicity of curricula that support diverse local and regional educational practices that account for cultural differences, priorities, and goals. This situatedness of experience and outcomes points towards the need to define HCI and UX practices in a pluralistic way (Bardzell, 2010) that recognizes the role of difference in design practice, while also facilitating communication along the recognized dimensions of that difference. Importantly, it is important for design education scholars to further investigate both the role and value of local and indigenous pedagogies as well as means of enriching these pedagogies with other modes of instructional engagement. While in the context of this study, we primarily focused on how exterior pedagogies may transform the study of UX design (with studio pedagogy as a non-dominant pedagogy both in the US and China), there is also value in better understanding what local, regional, and national cultural norms may be positively or negatively impacted by this importation. Indeed, there seems to be a fine line between pedagogical colonialism and an ongoing program of pedagogical improvement which deserves further exploration.

Conclusion

In this paper, we reported on a four-year cross-cultural engagement in UX educational practices, drawing together program-level design decisions and the experience of students that span UX-focused programs in the United States and China. We identify a range of factors that influence the formation and performance of studio culture in these environments, including instances where culture, social, and contextual factors constrain or enable particular kinds of educational experiences. We conclude with opportunities for future research on UX and HCI educational practices, including a greater focus on local educational practices and a multiplicity of curricular philosophies.

References

Abdelnour-Nocera, J. L., Austin, A., Michaelides, M., Modi, S., & Oyugi, C. (2012). Exploring cultural differences in HCI education. *Proceedings Cultural Attitudes Towards Technology and Communication*, 410–419. https://repository.uwl.ac.uk/id/eprint/535/

Adams, R. S., Daly, S. R., Mann, L. M., & Dall'Alba, G. (2011). Being a professional: Three lenses into design thinking, acting, and being. *Design Studies*, *32*(6), 588–607. https://doi.org/10.1016/j.destud.2011.07.004

Bardzell, S. (2010). Feminist HCI: taking stock and outlining an agenda for design. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 1301–1310. https://doi.org/10.1145/1753326.1753521

Bidwell, N. J. (2016). Decolonising HCI and interaction design discourse: some considerations in planning AfriCHI. *XRDS*, *22*(4), 22–27. https://doi.org/10.1145/2930884

Blevis, E., Lim, Y.-K., Stolterman, E., Wolf, T. V., & Sato, K. (2007). Supporting design studio culture in HCI. *CHI '07 Extended Abstracts on Human Factors in Computing Systems*, 2821–2824.

Blevis, E., Rogers, Y., Siegel, M., Hazlewood, W., & Stephano, A. (2004). Integrating HCI and design: HCI/d at IUB, a design education case story. *Workshop on the Relationship between Design and HCI, ACM CHI 2004 Conference on Human Factors and Computing Systems. Vienna, Austria.*

Bohemia, E. (2010). Complexities of Teaching and Learning Collaborations with International Partners: The Global Studio. *DRS Biennial Conference Series*. https://dl.designresearchsociety.org/drs-conference-papers/drs2010/researchpapers/14/

Boling, E., Schwier, R. A., Gray, C. M., Smith, K. M., & Campbell, K. (Eds.). (2016). *Studio Teaching in Higher Education: Selected Design Cases*. Routledge. https://www.routledge.com/Studio-Teaching-in-Higher-Education-Selected-Design-Cases/Boling-Schwier-Gray-Smith-Campbell/p/book/9781138902435

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Bray, M., Adamson, B., & Mason, M. (2014). *Comparative Education Research: Approaches and Methods* (M. Bray, B. Adamson, & M. Mason (Eds.)). Springer, Cham. https://doi.org/https://doi-org.ezproxy.lib.purdue.edu/10.1007/978-3-319-05594-7

Buchanan, R. (1995). Rhetoric, humanism and design. In V. Margolin & R. Buchanan (Eds.), *Discovering Design: Explorations in Design Studies* (pp. 23–66). University of Chicago Press.

Carspecken, P. F. (1996). *Critical ethnography in educational research: A theoretical and practical guide*. Routledge.

Cennamo, K. (2016). What is studio. In E. Boling, R. A. Schwier, C. M. Gray, K. M. Smith, & K. Campbell (Eds.), *Studio Teaching in Higher Education: Selected Design Cases*. Routledge.

Churchill, E. F., Bowser, A., & Preece, J. (2016). The Future of HCI Education: A Flexible, Global, Living Curriculum. *Interactions*, *23*(2), 70–73. https://doi.org/10.1145/2888574

Coso Strong, A., Lande, M., & Adams, R. (2019). Teaching Without a Net: Mindful Design Education. In D. Schaefer, G. Coates, & C. Eckert (Eds.), *Design Education Today: Technical Contexts, Programs and Best Practices* (pp. 1–21). Springer International Publishing. https://doi.org/10.1007/978-3-030-17134-6_1

Dey, A. K., Shi, Y., Tian, F., & Cheng, S. (2015). Developing HCI Education Crossing Asia. *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems*, 2361–2364. https://doi.org/10.1145/2702613.2702651

Exter, M. E., Gray, C. M., & Fernandez, T. M. (2020). Conceptions of design by transdisciplinary educators: disciplinary background and pedagogical engagement. *International Journal of Technology and Design Education*, *30*(4), 777–798. https://doi.org/10.1007/s10798-019-09520-w

Faiola, A. (2007). The Design Enterprise: Rethinking the HCI Education Paradigm. *Design Issues*, *23*(3), 30–45. https://doi.org/10.1162/desi.2007.23.3.30

Gray, C. M., Parsons, P., Toombs, A. L., Rasche, N., & Vorvoreanu, M. (2020). Designing an Aesthetic Learner Experience: UX, Instructional Design, and Design Pedagogy. *International Journal of Designs for Learning*, *11*(1), 41–58. https://doi.org/ijdl.v11i1.26065

Greenberg, S. (2009). Embedding a design studio course in a conventional computer science program. *Creativity and HCI: From Experience to Design in Education*, 23–41.

Hewett, T. T., Baecker, R., Card, S., Carey, T., Gasen, J., Mantei, M., Perlman, G., Strong, G., & Verplank, W. (1992). *ACM SIGCHI Curricula for Human-Computer Interaction*. dl.acm.org. https://dl.acm.org/citation.cfm?id=2594128

Kaygan, P., Dilek, I., & Kaygan, H. (2019). Industrial Design Students' Reflections on Cross-Institutional and Distance Collaboration. In *Insider Knowledge - Proceedings of the Design Research Society Learn X Design Conference, 2019*. https://doi.org/10.21606/learnxdesign.2019.07018

Kharrufa, A., & Gray, C. M. (2020, May). Threshold Concepts in HCI Education. *2nd Annual ACM SIGCHI Symposium on HCI Education (EduCHI 2020)*. https://educhi2020.hcilivingcurriculum.org/paper/threshold-concepts-in-hci-education/

Koutsabasis, P., & Vosinakis, S. (2012). Rethinking HCI Education for Design: Problem-Based Learning and Virtual Worlds at an HCI Design Studio. *International Journal of Human–Computer Interaction*, *28*(8), 485–499. https://doi.org/10.1080/10447318.2012.687664

Kou, Y., Gray, C. M., Toombs, A. L., & Adams, R. S. (2018). Understanding Social Roles in an Online Community of Volatile Practice: A Study of User Experience Practitioners on Reddit. *ACM Transactions on Social Computing*, *1*(4), 17. https://doi.org/10.1145/3283827

Lallemand, C., Gronier, G., & Koenig, V. (2015). User experience: A concept without consensus? Exploring practitioners' perspectives through an international survey. *Computers in Human Behavior*, *43*, 35–48. https://doi.org/10.1016/j.chb.2014.10.048

Lazem, S., & Dray, S. (2018). Baraza! human-computer interaction education in Africa. *Interactions*, *25*(2), 74–77. https://doi.org/10.1145/3178562

Meyer, M. W., & Norman, D. (2020). Changing Design Education for the 21st Century. *She Ji: The Journal of Design, Economics, and Innovation*, *6*(1), 13–49. https://doi.org/10.1016/j.sheji.2019.12.002

O'Leary, S. R., & Turner, B. (2020, May). Towards a Decolonized Future: Desettling HCI. *2nd Annual ACM SIGCHI Symposium on HCI Education (EduCHI 2020)*. https://educhi2020.hcilivingcurriculum.org/paper/towards-a-decolonized-future-desettling-hci/

Oleson, A., Solomon, M., & Ko, A. J. (2020). Computing Students' Learning Difficulties in HCI Education. *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–14. https://doi.org/10.1145/3313831.3376149

Parrish, P. E. (2009). Aesthetic principles for instructional design. *Educational Technology Research and Development: ETR & D*, *57*(4), 511–528. https://doi.org/10.1007/s11423-007-9060-7

Reimer, Y. J., & Douglas, S. A. (2003). Teaching HCI Design With the Studio Approach. *Computer Science Education*, *13*(3), 191–205. https://doi.org/10.1076/csed.13.3.191.14945

Shulman, L. S. (2005). Signature pedagogies in the professions. *Daedalus*, *134*(3), 52–59. https://www.jstor.org/stable/20027998?seq=1#page_scan_tab_contents

St-Cyr, O., Jovanovic, A., Chignell, M., MacDonald, C. M., & Churchill, E. F. (2018). The HCI living curriculum as a community of practice. *Interactions*, *25*(5), 68–75. https://doi.org/10.1145/3215842

Tlostanova, M. (2017). On decolonizing design. *Design Philosophy Papers*, *15*(1), 51–61. https://doi.org/10.1080/14487136.2017.1301017

Tunstall, E. (2013). Decolonizing design innovation: Design anthropology, critical anthropology, and indigenous knowledge. *Design Anthropology: Theory and Practice*, 232–250.

Van Boeijen, A., & Stappers, P. J. (2012). Designers Coping with Culture in an Educational Setting. *DRS Biennial Conference Series*. https://dl.designresearchsociety.org/drs-conference-papers/drs2012/researchpapers/143/

Vorvoreanu, M., Gray, C. M., Parsons, P., & Rasche, N. (2017). Advancing UX Education: A Model for Integrated Studio Pedagogy. *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*, 1441–1446. https://doi.org/10.1145/3025453.3025726

Zhu, D., Liu, W., Tang, S., Wang, M., Liu, Y., & Sheng, J. (2021). Landing UX Design Thinking Tools and Strategies in a Chinese Context. *Human Interaction, Emerging Technologies and Future Applications III*, 63–68. https://doi.org/10.1007/978-3-030-55307-4_10

Ziqing Li
Purdue University, USA
li3242@purdue.edu
Ziqing (Nicole) Li is a graduate student at Purdue University studying User Experience Design. She holds a bachelors degree in UX Design from Purdue University with minors in Computer Science and Psychology.

Colin M. Gray
Purdue University, USA
gray42@purdue.edu
Colin M. Gray is an Associate Professor at Purdue University and program lead for an undergraduate major and graduate concentration in UX Design. He holds appointments as Guest Professor at Beijing Normal University and Visiting Researcher at Newcastle University. His research focuses on the ways in which the pedagogy and practice of designers informs the development of design ability, particularly in relation to ethics, design knowledge, and professional identity formation.

Austin L. Toombs
Purdue University, USA
toombsa@purdue.edu
Austin L. Toombs is an Assistant Professor at Purdue University and leads the Community-Computer Interaction Lab. He studies the impact that digital technologies have on how communities develop, are maintained, and foster (or not) strong interpersonal relationships between community participants. This includes how these technologies are implicated in explicit and implicit forms of care. He is also interested in how community-centered technologies encourage the formation and maintenance of some identities, while discouraging others.

Kevin McDonald
Purdue University, USA
mcdona76@purdue.edu
Kevin McDonald is a UX Strategist at KeHE Distributors. He holds a bachelors degree in UX Design from Purdue University and has previously completed internships at Chamberlain Group and KeHe Distributors.

Lukas Marinovic
Purdue University, USA
lmarinov@purdue.edu
Lukas Marinovic is a graduate student at Purdue University studying User Experience Design. He holds a bachelors degree in Computer and Information Technology with a minor in Film and Video Studies from Purdue University, and has previously worked as a cybersecurity intern for Ford Motor Company.

Wei Liu
Beijing Normal University, China
wei.liu@bnu.edu.cn
Wei Liu is an Associate Professor and the director of the UX masters program at Beijing Normal University, and an Adjunct Associate Professor at Purdue University. He is interested in HCI, human factors, and transdisciplinary teaching and learning.