

Emergent Critique in Informal Design Talk: Reflections of Surface, Pedagogical, and Epistemological Features in an HCI Studio

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While critique is frequently studied in formal higher education contexts, often including investigation of classroom critique and high stakes design juries, relatively little is known about the qualities of informal critique and design talk that occurs organically between students in the design studio environment. A critical analysis of design education has revealed a lack of attention to the role of student experience and the power relations that often dominate critique as an evaluative activity. Previous studies conducted in this framing have revealed what Dutton (1991) terms the 'hidden curriculum' of a design studio, including factors that affect the student experience of a design pedagogy. Utilizing Shaffer's (2003) framework to theorize the construction of this 'hidden curriculum,' an evaluation of features manifests on three levels: surface, pedagogical, and epistemological.

This study investigates the occurrence of informal design talk between students in a shared studio workspace in a graduate Human-Computer Interaction design program. Data sources for this ethnographic investigation include: approximately 150 hours of participant observation of the studio space during a four month period, supporting audio recordings and photographs, and intensive interviews.

Based on initial analysis of collected data, including field notes, photographs, and audio recordings, a preliminary taxonomy of informal instigating interactions can be arranged. A broad continuum of informal design talk was observed, with little critique or critical talk between students following a structure that corresponds with classroom or professor-led critique. Despite this lack of structural similarity, informal design talk frequently invokes elements of critical discourse, reflecting the growth of a personal design perspective, and the latent assumptions built into the surface, pedagogical, and epistemological structures of the studio environment.

Informal Critique; Hidden Curriculum; Critical Pedagogy; Designerly Talk; Human-Computer Interaction

- 1 Katherine Cennamo and Carol Brandt. 'The 'Right Kind of Telling': Knowledge Building in the Academic Design Studio.' *Educational Technology Research and Development* 60, no. 5 (2012): doi:10.1007/s11423-012-9254-5; Shaffer, D W. WCER Working Paper No. 2003-11, Madison, WI: University of Wisconsin-Madison, Wisconsin Center for Educational Research, 2003.
- 2 Thomas A. Dutton, 'The Hidden Curriculum and the Design Studio: Toward a Critical Studio Pedagogy.' In *Voices in Architectural Education: Cultural Politics and Pedagogy*. Edited by Thomas A Dutton. New York: Bergin & Garvey, 1991; Willenbrock, Laura. 'An Undergraduate Voice in Architectural Education.' In *Voices in Architectural Education: Cultural Politics and Pedagogy*. Edited by Thomas A Dutton. New York: Bergin & Garvey, 1991.
- 3 Colin M. Gray, 'Discursive Structures of Informal Critique in An HCI Design Studio,' in *Nordes 2013: Experiments in Design Research*. Copenhagen, Denmark/Malmö, Sweden, 2013.
- 4 David Williamson Shaffer, 'Portrait of the Oxford design studio: An ethnography of design pedagogy,' WCER Working Paper No. 2003-11, Madison, WI: University of Wisconsin-Madison, Wisconsin Center for Educational Research, 2003.
- 5 Colin M. Gray and Craig D. Howard, 'Designerly Talk in Non-Pedagogical Social Spaces,' *Journal of Learning Design*, (in press).
- 6 Dutton, *Hidden Curriculum*; Crysler, C. Greig. 'Critical Pedagogy and Architectural Education.' *Journal of Architectural Education* 48, no. 4 (1995): 208-17. <http://www.jstor.org/stable/1425383>; Percy, Christine. 'Critical Absence Versus Critical Engagement. Problematics of the Crit in Design Learning and Teaching,' *Art, Design & Communication in Higher Education* 2, no. 3 (2004): 143-54.

Introduction

As the core element of design education—the studio pedagogy—is adopted in emerging design disciplines, there is often little consideration paid to where features are drawn from and how they are adopted.¹ While there is considerable mention in the literature about the student's apprehension of the formal pedagogy, there is correspondingly little said about the student's overall experience of the pedagogical experience,² or a student's interactions and activities outside of the classroom setting.³ I use this paper, drawn from a larger dissertation study, to address informal interactions in an interaction design studio, using this framing to address the presence of Shaffer's structures of the studio⁴—surface, pedagogical, and epistemological—in a more critical stance.

Within this framing, I will address the kinds of interactions that emerge between students in a non-classroom studio space unmediated by professors, including what instigating interactions appear to allow for critique or other forms of designerly talk⁵ to emerge.

Review of Literature

Because informal spaces and the kinds of interactions afforded by these spaces adjacent to the formal pedagogy are not substantially addressed in the literature, the theoretical positioning of this study will be based on three complementary views of design education and the studio: critical pedagogy and the role of student experience in understanding design education, theoretical models of the design studio, and the properties of peer informal critique as it exists outside of the formal curriculum.

Critical Pedagogy in the Studio

There is a limited history of a critical perspective in design pedagogy, which has been explored primarily in the framing of architectural education.⁶ While some work in architectural education has been motivated by a broader critical approach to understanding the social organism of the studio,⁷ there have also been limited attempts to theorize the critical pedagogy of the studio form of education,⁸ drawing from Marxist theory in the work of Paulo Freire.⁹ Freire, as reinterpreted and applied by Giroux,¹⁰ Darder,¹¹ and others has been applied broadly to international education, issues of social justice in education, and recognizing student agency in the educational process, but has been applied only to a small degree in design education. This study addresses this somewhat dormant perspective in the design literature, linking together the theoretical moorings of critical pedagogy with the student experiences of a pedagogy, with the assumption that a full reckoning of the critical pedagogy must include aspects of how students mold or create portions of the pedagogical experience. In this study, the students' development in relationship to their future role as a practitioner is explored, using the construct of the Brandt, et al.'s 'studio bridge.' While this bridge is described as a 'sheltered practice community where students can learn the norms, practices, and tools use of the larger professional community of practice'¹² primarily construed in a pedagogical framing, this bridge is reimagined as a community that is co-created

between the student and the pedagogy within the context of the professional community of practice, much like Crysler's representation of the construction of *habitus*¹³ or Webster's attacks¹⁴ on a primarily transmissive understanding of education in the studio mode.

Theoretical Model of the Studio

Limited attempts have been made to theorize the organism of the design studio. While Bourdieu's *habitus* has been used as one possible social framing of the space, as students interact in the constant construction of a culturally derived space, this perspective has seen limited application in the past decade.¹⁵ Another model of the studio comes from outside the traditional design education community, and seeks to explain the theoretical basis for the studio across three dimensions—surface, pedagogical, epistemological.¹⁶ While this model of the studio has not been empirically verified beyond the single architectural studio documented in the original 2003 study, it has been used broadly in emergent design disciplines to describe the creation and modification of studio spaces.¹⁷ I will use this model to frame a discussion of a concept from critical pedagogy—the 'hidden curriculum' of a discipline—which represents implicit norms and behaviors that are tacitly communicated in the formal educational process. Because this study also rests on the vantage point of student experience outside the formal pedagogy, I will address how students build their pedagogical experience outside of the classroom or planned curriculum, and how these actions affect or alter the three dimensions of Shaffer's theorization of the studio.

The surface features of a space refer to the physical attributes of a studio: the furniture, access, technology, and physical affordances. Pedagogical features or activities represent the types of evaluation and instruction that are carried out, primarily within the formal curriculum. Finally, the epistemology of the studio describes the implicit or tacit beliefs that underlie the actions of participants in the educational process. The design studio space is one way that students build their pedagogical experience, constrained in some important ways by the pedagogy and surface features of the space. Despite these constraints or shaping forces, students are the main occupants of the space, and shape the kinds of communication that occur within it, thus bi-directionally shaping the formal curriculum.

Peer Informal Critique

This study addresses critique and critical talk, as it emerges in informal interactions in a design studio space between students. While the critique literature addresses formal types of critique in substantial detail,¹⁸ the presence of informal critique has been left largely unexplored. While numerous sources describing formal critique seem to implicitly assume the presence of an informal analogue, this type of communication has not been explored in significant depth.¹⁹ Exploratory work attempting to document peer critique in this HCI studio has been carried out in constructed research designs,²⁰ but this work comes with significant limitations, due to the non-naturalistic discovery and documentation of critique. The limitations of this recent study directly inform the longer-scale, highly ethnographic study documented in this paper.

- 7 Crysler, *Critical Pedagogy*; Webster, Helena. 'Architectural Education After Schön: Cracks, Blurs, Boundaries and Beyond.' *Journal for Education in the Built Environment* 3, no. 2 (2008): 63–74.
- 8 Crysler, *Critical Pedagogy*; Dutton, *Hidden Curriculum*.
- 9 Paulo Freire. *Pedagogy of the Oppressed*. New York: Continuum, 2000.
- 10 Henry A. Giroux, *On Critical Pedagogy*. New York: Continuum International Publishing Group, 2011.
- 11 Antonia Darder, Marta Baltodano, and Rodolfo D. Torres. *The Critical Pedagogy Reader*. New York, NY: Routledge Falmer, 2003.
- 12 Carol B. Brandt, Katherine Cennamo, Sarah Douglas, Mitzi Vernon, Margarita McGrath, and Yolanda Reimer. 'A Theoretical Framework for the Studio As a Learning Environment.' *International Journal of Technology and Design Education* (2011) doi:10.1007/s10798-011-9181-5
- 13 Crysler, *Critical Pedagogy*.
- 14 Helena Webster, 'Architectural Education After Schön: Cracks, Blurs, Boundaries and Beyond.' *Journal for Education in the Built Environment* 3, no. 2 (2008): 63–74.
- 15 Crysler, *Critical Pedagogy*; Colin M. Gray, 'Informal Peer Critique and the Negotiation of Habitus in a Design Studio,' in *DRS // CUMULUS 2013: 2nd International Conference for Design Education Researchers*. Oslo, Norway, 2013.
- 16 Shaffer, *Oxford Design Studio*.
- 17 Brandt et al., *Theoretical Framework*; Cennamo, Katherine, Carol Brandt, Brigitte Scott, Sarah Douglas, Margarita McGrath, Yolanda Reimer, and Mitzi Vernon. 'Managing the Complexity of Design Problems Through Studio-based Learning.' *Interdisciplinary Journal of Problem-based Learning* 5, no. 2 (2011): 5.

Fig. 1. Architectural blueprint of the ethnographic site

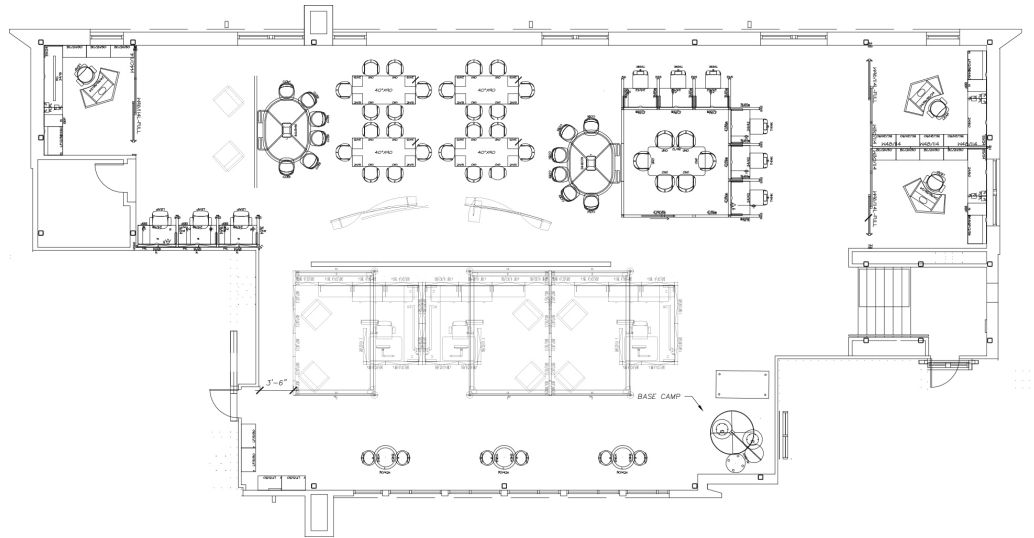


Fig. 2. The main work area in the design studio, with all four work tables and one of the presentation tables visible

Method

This study is naturalistic, employing a range of ethnographic methods to observe interactions among students in a Human-Computer Interaction design (HCI/d) studio space. This method has been designed to address the limitations of previous research on informal critique in researcher-assigned dyads,²¹ while extending knowledge beyond documented forms of critique to a wide range of designerly interactions among students as carried out in a specific studio environment.

Data Collection

Data sources for this study include one semester of intensive participant observation in a non-classroom studio space in an HCI/d Master's program, located in a large Midwestern American university, and follow-up critical interviews to support field observations. This paper is part of a larger dissertation study, currently in progress.

Data collection included 150 hours of participant observation over 67 sessions. This collection comprises: thick handwritten and digital field notes, 45 hours of audio recordings across 150 segments, and 745 photographs. Field notes were captured at the studio site using a notebook and pen, and were later transferred into digital form by the researcher, including an expansion of notes into a richer, narrative style to encourage recall of details observed but not thoroughly documented in the original physical field note. The digital field note is the primary record used for analysis and documentation in this study.

Audio recordings were captured in order to document student interactions perceived by the researcher to be salient, representing a wide cross-section of activities in the studio such as: group meetings, one-on-one critiques, social talk, staff and faculty members discussing the logistics of the space, and student-run upskilling activities. Audio recordings were documented in a data log, accompanied by a brief description of the interaction being captured, the primary participants, and the activities or materials I observed.

Photographs were also taken to enhance the primary field note record, reinforcing physical positions of students in the space, forms of collaboration, work-in progress artifacts (e.g., sketches, affinity diagramming), and baseline photos documenting the features of the studio. In addition to the participant observations, 13 interviews were also conducted with a wide range of participants in the space, including: Master's students, students taking courses in the department who used the space, and PhD students who used the space as one of their work areas.

Ethnographic Site

The ethnographic site for this project is the graduate design studio that is managed by an HCI/d program in a large Midwestern American university. This program enrolls approximately 80 Master's students in a two-year residential program, 12 PhD students, and five full-time faculty. The space consists of several large work and collaboration areas, whiteboards, digital projection capabilities, and faculty offices (see Figures 1 and 2). These spaces and collaboration equipment can be experienced to some extent

18 Blythman, Margo, Susan Orr, and Bernadette Blair. *Critiquing the Crit*. The Higher Education Academy, Art, Design and Media Subject Centre, 2007. <https://intranet.rave.ac.uk/download/attachments/121176147/LTR080107-Critprojectfinalsentreportversion2.doc?version=1&modificationDate=1321008897257> (accessed February 14, 2012); Oh, Yeonjoo, Suguru Ishizaki, Mark D Gross, and Ellen Yi-Luen Do. 'A Theoretical Framework of Design Critiquing in Architecture Studios.' *Design Studies* (2012) doi:<http://dx.doi.org/10.1016/j.destud.2012.08.004>.

19 For example, Bowring, Jacky. 'Increasing the Critical Mass: Emphasising Critique in Studio Teaching.' *Landscape Review* 6, no. 2 (2000): 41-52; Conanan, Denise M., and Nichole Pinkard. 'Students' Perceptions of Giving and Receiving Design Critiques in An Online Learning Environment.' In *European Conference on Computer-Supported Collaborative Learning (Euro-CSCL)*. 2001.

20 Gray, *Discursive Structures*.

21 Ibid.

through their documentation in a design case.²² Primary data collection took place in the main studio area in the top center of Figure 1, while frequent walkthroughs of the entire space were performed to ensure coverage of areas outside this main workspace. No formal classroom instruction is held in this studio space, and students have full access to this space through access card any time of the day or night.

Analysis

The researcher began the identification of behaviors and types of interaction by reviewing the data log for salient audio recorded observations, specifically locating how these interactions began. Because these interactions were already considered at the time of collection to be salient, this represented a smaller subset of the data validated for this kind of analysis. After reviewing all audio recording descriptions, a preliminary list of exclusively coded instigating interactions was created. These interactions describe the instigating factor that started the conversation or changed the conversation from one type to another (Table 1). Where multiple factors seems to be related, or multiple events were observed simultaneously, the most prominent instigating interaction was coded. This initial coding revealed that a majority of the audio recorded interactions represented planned or previously scheduled meetings (n=53), along with a substantial number of interactions beginning with social talk (n=39) and explicit requests for advice (n=30). A small, yet sizeable minority of interactions resulted from being overheard in the space (n=16) or wanting to show off project work (n=12).

Table 1: Initial Taxonomy of Instigating Interactions

Instigating Interaction	#	Example Interactions
overheard/seen	16	Design talk or work is overseen or overheard while working separately
smalltalk/social talk	39	Casual greetings; ‘what are you up to?’; ‘how was your weekend?’; friendly talk
showing off	12	Displaying finished or in-progress work to others without provocation
planned/scheduled	53	Request to discuss at some point in the future; planned meeting
request for advice	30	Explicit request for guidance, opinion, or interpretation

²² Callison, Matthew. ‘A Design Case Featuring the Graduate Design Studio at Indiana University Bloomington’s Human-Computer Interaction Design Program.’ *International Journal of Designs for Learning* 2, no. 1 (2011).

Using this preliminary list of instigating interactions, a close reading of the full set of digital field notes was performed, with the goal of identifying examples of each type of interaction in more detail, and verifying their place as truly *instigating* interactions. In relation to this close reading, the researcher also documented prototypical and atypical instances of each interaction, identifying a subset of interactions for transcription and additional analysis.

Results and Discussion

The instigating interactions drawn from participant observations are presented here in a summarized and preliminary, exploratory form, as types of behaviors that may be important to address as essential to being a student participant in this studio environment. It is important to understand how these ‘habits’ of the students in the studio are inextricably bound to the surface, pedagogical, and epistemological structures of the studio and the overarching design program, and these potential linkages will be addressed in greater detail.

Overheard or Overseen

These interactions relied on the ability and willingness of students in the space to actively eavesdrop on other conversations or activities taking place in the space. This is similar in purpose and outcome to a formal desk crit, but is completely student-led and directed.

This kind of instigating action allowed for critical conversations to initially form, but also afforded for the addition of participants. A critical conversation that formed among two participants might easily extend to other students in the space if interest is piqued and time is available. Sometimes, these overheard interactions caused a shift in physical location in the space (e.g., clustering into a circle or group), while in other cases, no physical movement was made, and students merely talked loud enough to include other participants across the space.

In general, overseeing something required the mediation of some physical or digital artifact. In these observations, whiteboard sketches, draft versions of a competition poster, a cover letter in Microsoft Word, and digital presentations all served as an ‘overseen’ artifact that sparked an ad hoc conversation. Overheard interactions were often more social in nature, although these conversations often moved from the purely social into discussions of gender identity in video games, the user experience of the latest on-demand audio service, or linkages between popular culture and student projects. In follow-up interviews, students said that they were generally comfortable with the possibility that their work may be overseen, or that they might overhear another group’s meeting, and potentially even join in.

Social Talk

Social talk was a more frequent form of instigation, resulting from small-talk and other forms of normal socialization between students. While this social talk occasionally began with simple greetings (e.g., hey, how are you doing?), it more frequently invoked some sort of recognized boundary object for students in the program—How is your methods project going? What did you think about [student’s] project in class? How’s the CHI poster [for a student design competition in the HCI field] going? For second year students in their final semester of the program, the boundary object was almost exclusively the capstone project or thesis, and while discussion about progress on this project was frequent from first year students, second year students seemed to mutually respect each other’s desires to not discuss these projects at length.

Fig. 3. A student sketching alone on a whiteboard, which prompted another student across the room to get up and offer him critique and advice.



Fig. 4. Posters hung by first year students with the expectation of critique by the members of the space. A variety of post-its and whiteboard notes can be seen, provided by Master's and PhD students as well as academics.



Because these observations were carried out in the spring semester, it is possible that enough socialization between the students in each cohort had been carried out, and social talk was not seen as necessary as a way to begin a conversation. Additional data collection is being undertaken in the fall 2013 semester to verify student behaviors during the first half of the year, and may add additional clarity to the use of social talk as an entrance to a critical conversation.

Showing Off

Student interactions involving 'showing off' occasionally coincided with the desire to be overseen or overheard, but were often carried out with one other student participant. While showing can be seen as pejorative in other contexts, it appears that this activity in the studio was accepted by students almost universally as part of being in this space, although some students were more likely to engage in this type of instigation.

Showing off was generally carried out by explicitly beginning a conversation with another student by representing what they had completed recently for a project, job seeking behavior, or another professionally oriented accomplishment. While there is some overlap with social talk, these instigations were explicitly seeded with some reference to a design artifact, completed task, or accomplishment. In one instance, a first year student entered the design space and approached one of her first year colleagues, saying 'I have two of three people done for methods [a project for a shared course] already.' This instigating interaction eventually resulted in a sharing of research sites, and a critique of sites already considered but not yet completed by the first student.

While most instances of showing off were directed toward other surrounding something they had done, occasionally, students showed off their ability in a particular area, essentially requesting to critique or evaluate a design project or other artifact. One first year student, who has substantial expertise in technical writing, sought out another first year student who was working on a cover letter for a job when she entered the space, saying 'I like to be nosy,' then proceeding to offer a critique of the other student's letter. In another case, a second-year student noticed a first-year student doing exploratory sketches for a museum experience project on the whiteboard. After several minutes of watching him, he approached the student, and offered other techniques for 'trying out' space configurations through orthogonal sketches.

Planned or Scheduled

This was the most common instigating interaction in my field observations, and most frequently included scheduled team meetings and one-on-one meetings planned between students. The HCI/d program housed in this space structures the formal curriculum around group or team projects, and the studio often served as a central meeting point for students in these design teams. Frequently, students served on multiple teams at the same time across their enrolled courses, and commonly appeared in these various team configurations. Because these team meetings were scheduled in advance, often

Fig. 5. A one-on-one session scheduled in advance for one student to help another student with their Adobe Photoshop skills in the context of a specific project.



Fig. 6. Students working individually in the main studio space.



with draft agendas shared between team members, social talk was often only used to ease students into their team meeting, with their collocated presence as a result of prior planning.

Some students used the space as a meeting point to discuss or critique each other's work, planning these interactions in advance either through email or other digital means, or after casually interacting in the space (e.g., 'Can I talk to you about this more at 4pm?'). As with the team meetings, these prior plans often set up the kind of interaction that would take place in this meeting, with social talk or other interactions softening the previously planned interaction.

Request for Advice

An explicit request from another student was the most intentional instigating action that I observed, and might be seen as similar to a professor requesting a formal pin-up critique in the classroom setting. While this request was occasionally planned in advance, it was more often the result of who was available in the space, and the student having a self-defined need for feedback. In some cases, students also mentioned that the presence of a specific individual 'jogged their memory,' reminding them that they needed feedback on a specific area of their design. For instance, seeing a student with known expertise in graphic design might remind a student that they were struggling with a layout issue in Adobe InDesign.

As with the overheard/overseen instigating interactions, requesting feedback from another student relies on a tacit social contract of the studio. Some students avoided working in the studio because they felt distracted by this quality of the studio, while others found these distractions a welcome part of engaging in a community of design practice. Regardless of the student motivation for working in the space, the wearing of headphones was universally accepted as a sign that someone should not be disturbed. Beyond this, students had few stated criteria for who they would or would not request advice or critique from—in most cases, these conversations were less evaluative, and more of an opportunity to communicate their design, verbally assessing their ability to explain it to an outsider. As one student stated, critique in this informal sense allows you to 'see into what they're thinking by what you're asking,' with another student seeing these informal critique opportunities as 'open[ing] up a dialogue' rather than primarily as an assessment of quality.

23 Shaffer, *Oxford Design Studio*.

Linkages to the Theoretical Model of the Design Studio

This exploratory summary of instigating interactions in the studio space allows for a richer discussion of how these kinds of interactions may reveal some of the implicit norms that are exemplified by this studio space and this design program. Some possible implications for these kinds of informal talk, particularly in the moment of instigation, will be framed through Shaffer's three structures of the studio—surface, pedagogical, and epistemological—with numerous implications for future research in a critical framing.²³

Surface Features

In observing interactions between students, it became clear that the physicality of the space itself indicates what kinds of conversations or interactions can occur, circumscribed by the affordances of the studio. This particular studio was explicitly designed for certain types of collaboration to occur,²⁴ and the presence of numerous whiteboards and tables seating 4-6 individuals logistically reinforces the team nature of interactions. There is also a divide between physical and digital space; while substantial online interaction between students is common in multiple venues,²⁵ students seem to interact differently in the studio than they might in an online setting. One student noted that online critique ‘makes [him] nervous’ because of the lack of control over the presentation and display of work, calling into focus the embodiment of one’s self and designerly identity in these kinds of interactions—physical or digital.

It is interesting to observe that, while the space was designed with specific affordances of interaction, students collaborated and communicated in patterns that may not be obvious given the surface features. When fewer students were in the space, participants at opposite ends of the space were able to overhear each other, and in some of these cases, a line of sight wasn’t even necessary to establish or sustain communication. Documentation of work using whiteboard space also demonstrated some of the unintended consequences of the design of a space. Limited whiteboard space (4 large whiteboards in the main space, a large whiteboard room, and another medium whiteboard in the southeast corner), or at least the perception of limited space meant that students were unlikely to leave their work up when they left the space, with the stated intent of wanting to be a ‘good neighbor.’ This logistical demand of the space, resolved by erasing student work-in-progress was contrasted by the students’ stated desire to see more work-in-progress artifacts. The studio space has reached a sense of stasis in this regard, with few whiteboards retaining design work beyond the session in which they are drawn, leaving the space almost awkwardly bare in the early morning and late night.

Pedagogical Activities

The pedagogy of this program is marked by teamwork and collaboration, primarily through pedagogical design. Students are warned early in the program against competing with each other, and encouraged to share designs, research, and other tools. The structure of formal critique and evaluation in the formal curriculum also have a significant role in how students perceive how a designer might respond in typical collaborative or team design situations.

The pedagogical activities often appeared to serve as a framework with which to begin discussions—e.g., ‘How are you doing on the methods project?’ This framework, leveraging the shared formal curriculum, is also appropriated in other kinds of designerly talk—to critically analyze design artifacts (e.g., web experiences, video games) and to engage in pseudo-professional talk consistent with their future community of practice. The pedagogical activities also frame the kinds of representations that are common in the space. Because team meetings often occur in the space, the markings created in these sessions are consistent with the expectations of that project. In one required

24 Micah Gideon Modell and Colin M. Gray, ‘Searching for personal territory in a human-computer interaction design studio,’ *Journal for Education in the Built Environment*, 6, no. 2, (2011), 54-78.

25 Gray and Howard, *Designerly Talk*.

course, Experience Design, students are asked to collaboratively design a museum experience, culminating in a video explanation of the final artifact and design process. Thus, the markings created by teams working on this project included elements common to video making: storyboarding, editing, filming, scoring. It was often clear by observing the space in a given week what projects were due, and who was enrolled in which courses, simply by observing the artifacts or techniques being used. As Vyas and Nijholt explain, these 'artful surfaces' can allow the focus of the studio to become clear to students and outsiders, creating a space that allows for the creation of creative and innovative designs.²⁶ In this way, the mere presence of pedagogically mediated artifacts perpetuates the vision of the professional community of practice envisioned by the program faculty. But this vision need not be unidirectional or transmissive—faculty commonly assigned open-ended projects (such as the museum experience project), allowing for students to shape the space, the artifacts, and the final design in the design process.

Epistemological Beliefs

The epistemology of the studio and the larger design program can be indicated by the other structures to some degree, allowing for a triangulation of activities or interactions with a corresponding belief or implicit norm. Much as Gray indicated the co-construction of *habitus* alongside the student's experience of a design program,²⁷ students are actively forming norms in accordance or opposition with the formal curriculum, and the surface and pedagogical structures can and do strongly influence this formation process. Even a student's exclusion of the studio in their everyday work, where they might choose to work at a coffee shop or at home, results in a certain rejection of the inscribed norms of the studio, perpetuated by their absence.

In the studio, students have organized in ways that represent their adoption of certain norms from the pedagogy: being willing to collaborate and share, not compete; relative comfort with being overheard or listened in on; taking on the identity of a designer and bringing that perspective to every aspect of life. While many of these norms are encouraged by the formal pedagogy early on, there are other norms that seem to originate in the alumni of the program. There is a sense of pseudo-professional talk—a student projecting their identity beyond that of a student designer to that of a practicing designer in the discipline of interaction design.²⁸ In this way, observed pseudo-professional talk seems to originate from the students (possibly informed by the alumni of the program), rather than the formal pedagogy. Students look to each other to create cover letters and portfolio sites, they discuss open positions and interview processes, and analyze the kind of portfolio examples or skills they will need to have for a given position. This projected design community even extends to student-driven tool knowledge, with a drive to teach each other things that they might (uniquely) know, and be able to share back to the community: graphic design, typography, photography, perceptual computing technologies.

The 'studio bridge,' then, appears to be co-constructed between students and the formal pedagogy. While the pedagogical activities and surface features may encourage professional development, in alignment with a future professional community of practice, in

26 Vyas, Dhaval, and Anton Nijholt. 'Artful Surfaces: An Ethnographic Study Exploring the Use of Space in Design Studios.' *Digital Creativity* 23, no. 3-4 (2012): doi:10.1080/14626268.2012.658522.

27 Gray, *Peer Critique*.

28 Dannels, Deanna P., and Kelly Norris Martin. 'Critiquing Critiques: A Genre Analysis of Feedback Across Novice to Expert Design Studios.' *Journal of Business and Technical Communication* 22, no. 2 (2008): doi:10.1177/1050651907311923.

certain ways, these elements of the studio are not deterministic. Students in this studio have shaped their own 'studio bridge' in important ways, choosing to align with the formal pedagogy in many cases, while critically evaluating and replacing it in other cases. Future discussion of the informal studio environment must include a reckoning of both directions of influence, explaining how the formal pedagogy shapes students, and how students, in turn, shape the pedagogy and their future practice community.

Limitations and Implications for Future Research

This study is limited to one design studio in a specific design discipline, and thus these findings are not necessarily generalizable to other design disciplines, other design studios within this discipline, or even future iterations of this studio environment. While research in the critical pedagogy framing is uncommon in design education, this perspective seems to allow the researcher the ability to uncover latent assumptions and implicit norms embedded into the hidden curriculum of a discipline. Particularly in emerging design disciplines like HCI, it is critical to interrogate the pedagogy in this way to discover what kinds of biases might exist for expression of a developing designer identity. Additional limitations include the kind of activities focused on in this study—while the data collected is largely comprehensive of the activities that take place in the studio, it does not adequately reference other types of informal interactions between students, and thus cannot be seen as a comprehensive catalogue of informal interactions outside of the formal classroom.

A wide range of future research could be indicated from this study, and the broader dissertation study on which it is based, including: paths to create greater awareness of the student's experience and use of the studio, the kinds of interactions that these spaces afford, and how students communicate with each other. It is particularly interesting to analyze student communication within the framing of the 'studio bridge,'²⁹ where students appear to be acting and communicating in ways indicative of a projected quasi-professional community of practice. This appears to be a projection of how these students will act in a future or projected practice community, and it is vital that student expectations of behavior in that community aligns with the pedagogical experience that the studio affords.

Conclusion

As the studio model of education continues to be integrated into non-design and emerging design disciplines, it is critical for researchers to have a full sense of how the organism of the studio contributes to student learning. While many of the traditional pedagogical forms are substantially documented, the patterns of interaction in the studio have been left largely untouched, even as these elements of the hidden curriculum seem to uncover the student experience more fully. This study explores how informal student interactions might help us understand the implicit norms of a program and studio more completely, using the lens of informal talk, often in a critical framing, to explore the creation, propagation, and evolution of these norms. The kind of talk often included components of critique, but frequently established within a broader

²⁹ Brandt et al., *Theoretical Framework*.

context of designerly talk, rather than the critique form that is known and documented in the formal classroom environment. While additional work is needed to explore how the structures of this informal talk relate, and how critique is often couched in other forms of social and designerly talk, some instigating interactions have been identified in this exploratory study. Informal patterns communication seem to be indicative of how students will behave as they transition into a practitioner role, communicating with designers and other stakeholders, and thus understanding these nascent patterns of quasi-professional participation in the studio environment become a strong indicator of future success, alongside performance in the formal curriculum.