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Chapter Title: ***Design Studio as Research Site: Generating Hypotheses and Test Cases***

BIOGRAPHY

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ABSTRACT

In the discipline of architecture, defined as a research-oriented field within the last twenty years, using the studio as a site for research is a contested idea (Groat and Wang, 2013). Much of the early architectural research evolved primarily in technical fields and in the more quantitatively-oriented social sciences such as psychology and sociology, which is not well-suited to work in the design studio. On the other hand, the design studio, with its exploratory orientation, fits well with work that does not test, but develops hypotheses. This paper argues for the design studio as a site for exploratory research in which the approach and resulting cases are addressed with rigor, and presents two contrasting approaches to such research.

KEY WORDS

architecture, research, design studio, hypothesis, case study

INTRODUCTION

This chapter proposes using the academic architectural design studio as a site for research. While in architecture, it is controversial to see design as a valid research methodology (Groat and Wang, 2013), the broader field of design already advocates this approach (Joost et al, 2016). However, in the latter context, *design* is understood as professional practice and not professional education.

Findeli's concept of "project-grounded research" requires that questions be framed as projects "constructed anew by the designer-researcher according to each situation, through a sort of permanent

hermeneutic process." (2016, 28-9). Design researchers must uncover "the specific anthropological issue at stake and … elaborate the proper research inquiry," while designers must "deliver an adequate proposal to the actors/stakeholders" (p. 30). Babbie addresses three purposes of research: exploration, description and explanation (Babbie, 2016: 90-93). For Babbie, "[e]xploratory studies … are essential whenever a researcher is breaking new ground, and they almost always yield new insights into a topic for research. … The chief shortcoming of exploratory studies is that they seldom provide satisfactory answers to research questions, though they can hint at the answers and can suggest which research methods could provide definitive ones" (91). Dudovskiy describes exploratory research as investigations exploring a question's nature without requiring conclusive results: "the researcher ought to be willing to change his/her direction as a result of revelation of new data and new insights" (Dudovskiy 2018).

Our approach to studio pedagogy as a form of exploratory research, following Zeisel's idea of the design hypothesis (Zeisel, 1986/2006), is to see it as a *hypothesis-seeking* process. The studio operates uniquely as an environment for generating hypotheses, in that it enables students to uncover issues, redefine projects, and deliver proposals, as mutually reinforcing tactics. Within this context, we examine two studios, one taught by each author, to compare their tactical commonalities and approaches to *the studio as a site for research*.

1.0. RECONCEIVING INCARCERATION STUDIO

The first studio, led by author Robinson, with participation by Dan Treinen, architect at BWBR, and Angela Cousins of the Hennepin County Department of Community Correction and Rehabilitation, combined academic and professional orientations to evidence-based research, for final-year undergraduates in the B. S. in Architecture program. The studio began with Hennepin County's desire to address underutilized youth detention facilities. The community had rejected an earlier proposal as too institutional, too large, and inaccessible. In seeking the best way to serve adjudicated youth, the county suggested developing a spectrum of services, including sites for youth incarceration and treatment.

The research approach incorporated readings, literature searches, videos, site visits, precedent analysis, expert speakers, and class discussions presenting issues including racism, trauma-informed design, mental illness, addiction, age of maturity, and innovative incarceration approaches. The studio visited a youth residential incarceration setting, an adult short-term prison or workhouse, and a high-end youth addiction treatment center. Experts, including a youth psychiatrist, architects and interior designers with specialties in incarceration and therapy, prison personnel, and parents of adjudicated youth, gave presentations and participated on design reviews.

The design approach comprised a preconceptions exercise exploring normative and innovative attitudes toward incarceration; precedent analyses including traditional, innovative, and normative settings for adults and youth; sketch models exploring relationships between attitudes and architecture; and program design, site selection, and schematic design (Robinson & Weeks, 1984).

1.1. UNCOVERING ISSUES AND REDEFINING THE PROJECT (2089)

Precedent analysis covered a range of housing settings engaging cultural attitudes from punitive to healing. Analysis revealed that security concerns drove the design of American incarceration facilities in contrast to other forms of housing. Emphasis on security included establishing distance from local communities, separating staff space from residents, the use of cells and prison bars, and a lack of visual and physical access to exterior spaces.

Based on precedent studies, site visits and personal experiences, students designed pairs of sketch models representing contrasting attitudes (e. g., healing, normalization, education, therapy), identifying design attributes associated with attitudes. The models revealed the importance of activities such as youth 1) making meals and having their own room (normalization), 2) having access to natural settings, the ability to control stimulation and of feeling secure (healing), 3) having comfortable, adaptable furnishings to personalize settings and provide transition spaces supporting adjustment to different settings (therapy), and 4) having acoustically and visually calming settings (education). These exercises, alongside expert presentations and site visits, revealed issues such as the high proportion of adjudicated youth with mental illness, and family trauma (Ford et al, 2007; Dierkhising et al, 2013). They reinforced the need to pursue therapeutic design, even as incarceration experts stressed a security focus. (From the visits students learned that only a small proportion of adult residents require the level of security provided in the facility we visited, and very few youths are so violent that they require high level security.)

We theorized that high security associated with incarceration makes people incorrectly fear that former youth and adult internees are dangerous, stigmatizing them upon release. Furthermore, having experienced trauma and mental illness, adjudicated youth would benefit from therapeutic environments, rather than punishment and high security. The class decided that treating all adjudicated juveniles as potentially violent was unjust, and that our work should focus on the 90% or more of adjudicated youth who were non-violent.

We learned from parents that an extreme shortage of mental health treatment leads to unaddressed crises. Youth needing care are often sent out of state, creating hardship for their families. Institutionalized racism also became apparent in our site visits: at the county detention facility, all of the youth were of color, while residents in the high-end youth addiction facility, funded by insurance, were 90% Caucasian, with few if any of color. We learned that incarcerated youth came from a few impoverished neighborhoods, and we decided that our designs should focus on these neighborhoods, with the goal of preventing youth from getting in trouble.

We held a class discussion addressing a possible *care continuum* and its implications for our project. Informed by statements from class presentations by parents, we concluded that providing indirect family and community support was as important as directly supporting youth. We analyzed what it would mean to have a spectrum of care for a child at various development stages, and examined what challenges could arise in each stage and which institutions and programs might appropriately address these issues (Figure 1). We thus redefined the approach from a care continuum for youth to a care continuum for youth and families.

Our visit to the existing youth detention facility uncovered problems with its suburban location. A lack of public transportation restricted access for low-income parents. Students had to leave their high schools when in treatment, and the limited population reduced educational offerings. Upon treatment completion, returning youth could no longer access familiar therapists. These observations reinforced our decision to focus both on community-based treatment and on small, non-institutional settings for 24-hour treatment settings.

Although the original intention was to improve conditions at the county facility, uncovering these issues redefined the problem as one of *preventing* incarceration by helping youth in impoverished neighborhoods avoid trouble. This public-health approach encompassed youth, their families, and their communities in a care continuum no longer limited to housing, but instead involving services such as child care, after-school recreational activities for older youth, family and individual therapy,

occupational training, English-language and literacy education, tutoring, college prep, and mentoring for parents and youth.

CONTINUUM OF CARE

	INFANCY	PRESCHOOL	ELEMENTARY SCHOOL	MIDDLE SCHOOL	HIGH SCHOOL	YOUNG ADULT
CHILD (possible areas of needed support)	Health Fetal Alcohol Syndrome Disability Abuse (physical)	Identification of disability Behavior irregularities Adaptation to new rules/environments Abuse (physical, emotional)	Social skills Response to authority Keeping up with school Identifying Talents Aptitudes & Abilities Adaptation to new rules/ environments Abuse (physical and emotional)	Social skills Response to authority Keeping up with school Identifying Talents Aptitudes & Abilities Adaptation to new rules/ environments Puberty/emotions Peer Pressure Desire for autonomy Social Acceptance Pop culture influences Gang influences Greater physical strength Appearance of increased importance Constructive activities Unstructured time Increased mobility Pregnancy/ child care Financing Technology (phone, computer, etc.) Abuse (physical and emotional)	Social skills Response to authority Keeping up with school Identifying Talents Aptitudes & Abilities Financing Technology (phone, computer, etc.) Media & pop culture Influences Increased autonomy Increased Mobility (Car Enhanced) Leadership skill development Maintaining friendships Health management (diet, exercise, sleep) Dating Anxiety about the future Financial contribution to family Family childcare responsibilities Pregnancy/ child care Access to tutoring/ college prep Access to mentoring Skipping school/Dropping Out Drugs and alcohol use Gang participation /pressure Peer Pressure Sleep management Mental health/ depression/ anger Management Pregnancy/ childcare Homelessness Abuse (physical and emotional)	Increased responsibility Loss of school structure Loss of family structure Housing/ homelessness Dating/ marriage Understanding finances Access to job training/ college Access to mentoring Access to employment Access to transportation Access to food Maintaining friendships Access to sports Access to entertainment Access to health care Mental health/ depression/ anger Management Access to Alcohol Chemical dependency/ access to treatment Criminal Record No Longer Legally Juvenile Financing Technology (phone, computer, etc.) Health management (diet, exercise, sleep) Family childcare responsibilities Pregnancy/ child care Meeting society's expectations Gang participation /pressure Abuse (physical and emotional)
PARENT (possible areas of needed support)	Parent Education & Intervention Employment/ Home time Child Care Health care & medical expenses Pressure of a problem child Homelessness Job Training Language/ literacy training	Parent Education & Intervention Employment/ Parent-child scheduling Child Care Health care & medical expenses Pressure of a problem child Homelessness Job Training Language/ literacy training Cost of Enrichment Lessons	Parent Education & Intervention Employment/ Parent-child scheduling Cost of Teacher-Parent Conferences Child's school progress Cost of Tutoring/ Enrichment Lessons Child Care/ Child's child care Health care & medical expenses Dealing with child's sexuality Pressure of a problem child Homelessness Job Training Language/ literacy training Uncontrolled, non-family influences/ peer pressure/ gangs Stigma to Access Support	Parent Education & Intervention Employment/ Parent-child scheduling Cost of Teacher-Parent Conferences Child's school progress Cost of Tutoring/ Enrichment Lessons Child Care/ Child's child care Health care & medical expenses Dealing with child's sexuality Pressure of a problem child Child's mental and emotional maturity Homelessness Job Training Language/ Literacy Training Uncontrolled, non-family influences/ peer pressure/ gangs Stigma to Access Support	Parent Education & Intervention Employment/ Parent-child scheduling Health care & medical expenses Pressure of a problem child Child's mental and emotional maturity Homelessness Job Training Language/ literacy training Cost of Enrichment Lessons Cost of Teacher-Parent Conferences Uncontrolled, non-family influences Stigma to Access Support Dealing with child's sexuality Anticipation of child's independence and empty nest	Determining parental & grandparental responsibilities Whether and how much to support transition Financing & access to child's education/ training Child's access to health care Reforming own identity Empty nest role Possible loss of access to child Addressing a criminal record Pressure of a problem child Child's mental and emotional maturity
CHALLENGE	Physical & mental health- parent/ child Parent & child addiction Identifying physical & developmental disability Parent training Childcare Housing/ Homelessness Food Access Legal aid	Child development/ social skills Physical & mental health- parent/ child Parent training &/or therapy Bullying Parent addiction Identifying physical & developmental disability After school activities Access to technology & books Childcare Housing/ Homelessness Food Access Legal aid	Child development/ social & academic skills Physical & mental health- parent/ child Parent training &/or therapy Tutoring & mentoring Social acceptance & bullying Gang recruitment Identifying physical & learning disability Parent & child addiction After school activities Access to technology & books Childcare Housing/ Homelessness Food Access Legal aid	Youth development/ social & academic skills Physical & mental health- parent/ child Parent/ family training &/or therapy Tutoring & mentoring Social acceptance, bullying, social profiling Gang recruitment Identifying physical & learning disability Parent & child addiction After school activities Access to technology & books Time management skills (school, sleep, medications) Childcare Housing/ Homelessness Food Access Legal aid	Youth development/ social & academic skills Physical & mental health- parent/ child Parent/ family training &/or therapy Tutoring & mentoring Social acceptance, bullying, social profiling Gang recruitment Parent & child addiction Identifying physical & learning disability After school activities Access to technology, current events & books Time management skills (school, sleep, medications) Childcare Housing Food Access Legal aid	Youth development/ social, occupational & academic skills Jobs/education Transportation Housing/ Homelessness Childcare Food Access Mentoring Physical & mental health- parent/ child Parent/ family training &/or therapy Social acceptance, social profiling & friendship development Gang recruitment Parent & child addiction Identifying physical & learning disability Recreation and social opportunities Access to technology, current events & books Time management skills (work/school, sleep, medications) Legal aid
INSTITUTION/ SERVICE	Medical Mental Health/ Addiction Family Support Child care	Medical Mental Health/ Addiction Family Support Child care Preschool education Head Start Community Services (housing/ food/ special needs/ legal aid)	Medical Mental Health/ Addiction Family Support Child care School After School activities (recreation, tutoring mentoring, enrichment lessons) D.A.R.E. Sex Education Community Services (housing/ food/ special needs/ legal aid)	Medical Mental Health/ Addiction Family Support Child care School After School activities (recreation, tutoring mentoring, enrichment lessons, college prep) D.A.R.E. Sex Education Community Services (housing/ food/ special needs/ legal aid)	Medical Mental Health/ Addiction Family Support Child care School After School activities (recreation, tutoring mentoring, enrichment lessons, college prep, job prep) Sex Education Community Services (housing/ food/ special needs/ legal aid)	Medical Mental Health/ Addiction Family Support Child care Mentoring Jobs & job training College prep Community Services (housing/ food/ special needs/ legal aid)

Figure 1. Continuum of Care.

1.2. DELIVERING PROPOSALS

Designing for prevention in neighborhoods with large numbers of adjudicated youth required a research orientation to siting. Students identified programs addressing neighborhood needs, avoiding duplication of existing services. They designed facilities to serve youth and families with services including localized out-of-home care and transitioning back to the community.

Exercises asked students to develop a program with two alternative formal arrangements and to analyze two alternative sites, placing the designs on each site thus creating four alternative designs, from which one was chosen to develop.

One student proposed bringing youth treatment to local communities. His project (Figure 2) proposed small group homes as housing for youth with specialized problems (mental health, homelessness, etc.). These residences would share an after-school treatment and activity center near families and local high schools. The residents would sleep in the group home, attend a local school, go to the treatment center after school and return to their group home for the evening. After completing their residence term, they could maintain their daily pattern, exchanging the family residence for the group home.

The use of assumptions, hypotheses, and design guidelines alongside form-giving and analysis exercises helped students see how ideas changed in response to research findings and design -insights. For final projects, students responded to research issues as well as to context, proposing a neighborhood mental health center for adolescents, a park facility including athletics and a spectrum of after-school and therapeutic services, a pre-school program that would identify handicaps and train parents to deal with their handicapped offspring, and a neighborhood residential facility for adjudicated youth, training them for occupations in art, technology, or shop.

1.3. THE HYPOTHESES

The design studio is a site of exploratory research with hypotheses as product. Such hypotheses,

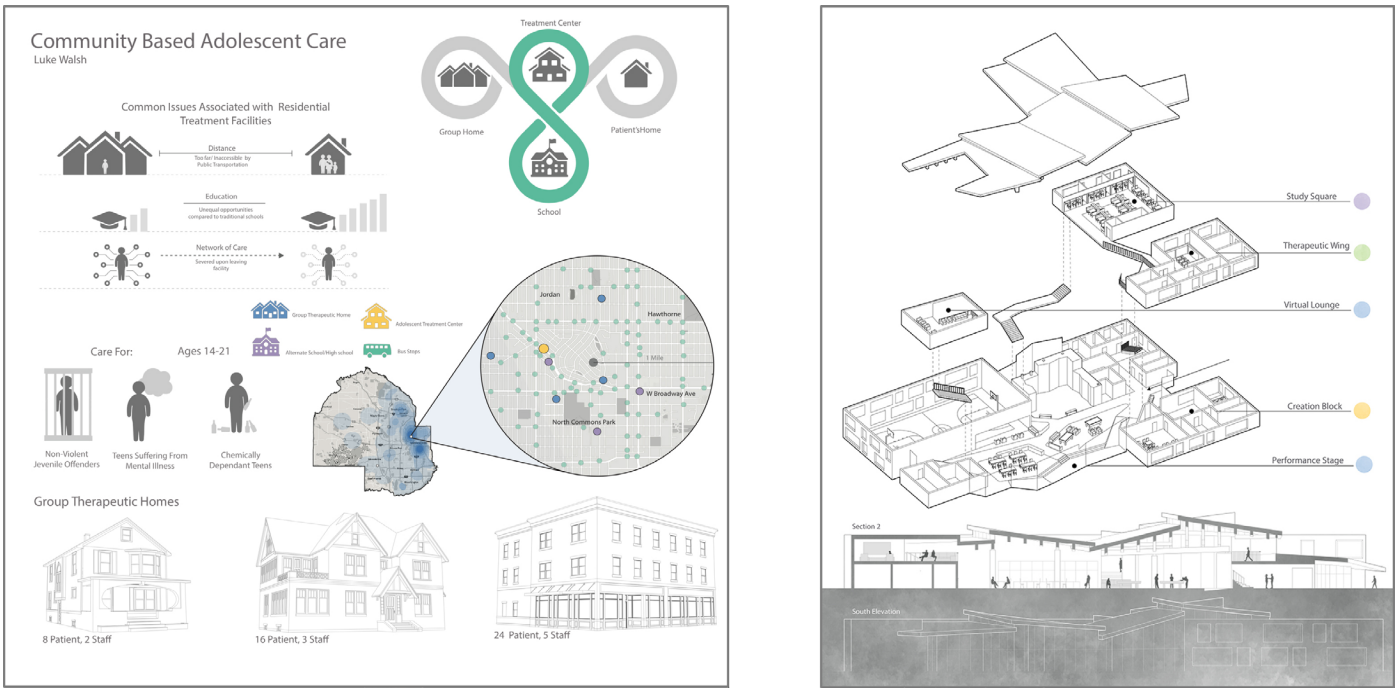

Figure 2. Community-Based Adolescent Care, Luke Walsh, Reconceiving Youth Incarceration Undergraduate Studio 5, Fall 2018

whether relating to physical design or to ideas about treatment are architectural because they generate program and thus affect built form. Creating and comparing alternatives at every design phase revealed how architecture communicates ideas and affects actions, directly influencing hypotheses. For example, comparing precedents and designing contrasting spaces revealed the effects of security measures (e. g., durable materials, the ability to personalize space, and the communication of criminality rather than normalization). Designing a care continuum influenced by issues raised by parents and other experts, when applied to sites, revealed resources and service gaps affecting hypothesis development. Student projects responded to hypotheses, indicating possible implementation in architectural form.

Based on research findings and student designs, a set of twelve hypotheses were developed concerning treatment and its architectural implications. The hypotheses include research assumptions on problem description, theorizing about design's possible effect, and directives connecting design elements to hypotheses. The following are examples of hypotheses linking research findings to design:

> *Hypothesis:* Creating hyper-secure incarceration facilities stigmatizes incarcerated people and prevents them from living in normal housing. Only extremely dangerous people should be placed in high level security facilities. Others should be housed in what Nirje describes as "providing the conditions of everyday life which are as close as possible to the norms and patterns of society's mainstream" (1969: 181). As Europeans are learning, removal from one's own home is sufficient punishment (Benko, 2015).
>
> *Hypothesis:* It is counter-productive to incarcerate youth. They should be considered as troubled youth, their problems should be addressed, and unless they are dangerous, they should remain in their communities.
>
> *Hypothesis:* Many youths are incarcerated because of mental illness and addiction. Instead of being incarcerated as criminals, these young people should receive treatment for their problems. Small mental health and addition facilities should be provided for adolescents in local communities.
>
> *Hypothesis:* By providing facilities in local communities for young people and families that assist with activities such as parenting, child care, family counseling and support, job training, literacy training, college preparation, mentoring, and after-school activities designed for older youth (including athletic recreation, expressive arts, digital and other skills development, and tutoring), families will be more able to address the needs of their youth members, and the young people will be less likely to get in trouble.

Student presentations combined models, images, and words. Written components included annotations on drawings and models detailing observations and design decisions, assumptions, hypotheses, and design directives (descriptions of the elements of design that achieve the intended outcomes).

2.0. THE BORDER-CROSSING STUDIO

The second studio, led by author Christenson, was an instance of the Integrated Design Studio in the second year of the University's professional M. Arch. degree program. As such, the studio was expected to address relevant external accreditation criteria related to integrated building design.

Within this context, students were expected to mediate between diverse and potentially conflicting forces (e. g., between structural questions, material questions, legal issues, project costs, and political issues). This mediation positioned the studio as a research-based studio in two ways. First, students conducted background research into factors

such as building codes, construction materials, and costs. Second, students confronted open-ended and somewhat ill-defined questions demanding architecturally specific response.

The pedagogy focused on the question of *architecture as interface*, where interface referred to a designed entity through which perception is filtered. An architectural interface could be a building, or a wall, or a window; less obviously, an interface could be a drawing of a building. Thus, an interface enables multiple constituencies to interact, to exchange ideas, and to negotiate priorities. A border-crossing station is an appropriate vehicle to test these ideas because it constitutes a designed entity that is obligated to mediate between two sociopolitical constructs (Mexico and the United States).

The studio deliberately conflated "research tasks" with "design tasks." The trivial example of ascertaining the dimensions or precise character of an existing site condition – a task normally associated with *research*, with interpreting and translating information from external sources – was pedagogically positioned as a task of *design*, as a negotiated and iterative process in which representational artifacts (drawings and models) were called into service to sustain a shared understanding.

2.1. UNCOVERING ISSUES

Through their review of existing literature, students identified normative conditions, e. g., the importance of spatial sequencing regarding the processing of non-citizen entrants, and the privileging of security over entrants' ability to move freely. A normative condition assumes that person-to-person interactions will take place across counters or through windows, that individual movement will take place through a sequence of distinct spaces, and that movement will be constrained by doors or gates operating according to rules.

Yet, as students discerned through their iterative design processes, architectural interfaces enable multiple constituencies to interact and consequently bring differing expectations and practices into overlap and conflict. In the case of a normative border-crossing station, a power imbalance is enforced in which staff have the ability to evaluate and assess the bona fides of visitors, but the visitors are essentially powerless to evaluate and assess the staff. In short, the architectural interface of the border-crossing station establishes specific behavioral expectations and power differentials for distinct populations.

2.2. REDEFINING THE PROJECT

As students moved beyond a review of existing conditions, they began to explicitly question implied and explicit priorities. Many students came to view the normative assumptions as unfairly and inappropriately valuing procedure and security over foundational expectations of human decency. Consequently, some students proposed redefinitions of the received program, implying a loosening of requirements associated with spatial sequencing, even to the point of suggesting erasure of the international border, with the border-crossing station transforming into something less like a gate and more like a point of destination.

This active questioning proceeded into other dimensions of the proposals. For example, students were required to design a strategy for ventilation of the proposed building. Although it was not required that this strategy be mechanical (i. e., involving fans, artificial cooling, etc.), several students began by assuming that the building would be artificially air-conditioned. Over time, supported by background research into ventilation strategies traditionally employed in hot, dry climates, students identified potentials of natural ventilation. This enabled a simplification in spatial boundary conditions, and in some cases the abandonment of airtight, artificially-controlled environments. Stated differently, once the students began to model

their design approaches after traditional hot-dry-climate building practices, their designs became simpler in execution; specific boundary conditions, previously seen as imperative to the functioning of the border-crossing station, began to loosen.

This loosening inevitably raised new questions. Practically, it prompted students to ask whether the border-crossing station could abandon – by degree – its assumed obligations to boundaries, security functions, and spatially-sequenced procedures while continuing to function effectively. Politically, many students speculated that abandoning security requirements in favor of a more open approach could be appropriate and even desirable.

One student's work in particular demonstrated possibilities inherent in loosening boundary conditions. She proposed a spatial dispersal of the border-crossing station, in which the "line" of the border became a "community" of various functions designed to welcome visitors from both sides of the border (Figure 3). The illustration of her proposal suggests both its building-scale and region-scale implications: a multiplicity of functions both anticipates and responds to the needs of constituencies (e. g., children, scholars, tourists), even as the territory on either side of the border becomes saturated with dispersed "refuge" stations for road-weary migrants.

Her project questions the dual premises of separation and channeling and instead problematizes the act of crossing as one of interaction and discovery. In all of these ways, the project was redefined from an exercise in adhering to strict criteria into one which actively questioned the appropriateness of those criteria and of assumptions concerning the border-crossing station's function and political position on a contentious international border. More generally, the act of redefining the project explicitly acknowledged that student work could raise architecturally specific questions in ways that were simultaneously mundane and provocative.

2.3. DELIVERING PROPOSALS AND GENERATING HYPOTHESES

Normative practice for the final meeting of an architecture design studio requires individual students to verbally present their completed work to a panel of invited guests and subject-matter experts, i. e., a "jury." Jury members are expected to bring their subject-matter expertise to bear on individual projects and to provide the students – individually and collectively – with critique addressing a range of issues, e. g., by highlighting missed opportunities, or by identifying possible paths for future development of the work.

Figure 3. Border-Crossing Station, Ashleigh Grizzell, Integrated Design Studio, Spring 2019

By contrast, in the border-crossing studio, the discussion was structured to enable simultaneous small-group discussions, in no instance of which was the student-author present to explain their proposal. Thus, subject-matter expert response was not conditioned by students' verbally stated intentions. The small-group meetings were explicitly positioned as an opportunity to generate questions for large-group discussions. Rather than position the student-authors of proposals as the authority of signification, the act of interpretation was left up to others, raising new insights into the projects. The discussion format enabled students and guests to work together to infer, extrapolate, and articulate questions.

This activity minimized the extent to which student arguments were defended with respect to other stakeholders, precisely because individual students were not physically present to defend their work or answer questions about it. Although proposals could be critiqued on the basis of stakeholder interest (e. g., failure to comply with governmental standards), critique was balanced by the emergence of post hoc design justifications. The emergent value of proposals did not derive from their defensibility but from their latent ability to provoke new questions for possible investigation. The following questions are examples of the hypotheses that emerged from the end-of-semester discussion:

> *Hypothesis.* If the border-crossing station is programmed as an attractive destination, settlement will intensify on either side of the border, and over time, a cross-cultural settlement will evolve, diminishing the politically divisive effect of the international border.
>
> *Hypothesis.* Rather than manifesting as a standalone building at a location where a road crosses the border (and consequently reinforcing differences between "legal" and "illegal" crossings), the border station should be a physically dispersed facility occupying the entire length of the border, in order to appropriately cater to the needs of refugees.

Future work deriving from hypotheses of this kind would necessarily revisit and challenge existing assumptions (e. g., present in the existing literature), proceeding from a basis newly informed by possibilities suggested in student proposals.

3.0. DISCUSSION

The two studios discussed here differed in several important respects. The incarceration studio was constituted around an existing, real-world problem upon which a discipline-specific perspective was brought to bear. Students engaged an actual site, learned from community members vested in the problem, and applied models for problem-resolution. Exercises assured that decisions would promote proposal development. Speculative solutions emerged as designed projects and as written hypotheses capable of further testing and application. By contrast, the border-crossing studio engaged students in a speculative process addressing an imagined project on a remote site. "Outside" voices (i. e. invited guests) impacted the process in only a very limited way.

The two studios assumed different positions on the overlap between research and design activities. Students in the incarceration studio relied on design and research activities to explore ideas, but their research findings were expressed as arguments foundational to the design proposals. Each student reframed research findings in the form of design hypotheses represented as test cases. By contrast, the border-crossing studio assumed a tactical identity between research and design, proposing that research and design do not differ in terms of actual activities carried out, but rather in the kinds of questions they respectively prompt (Christenson 2012). Hypotheses emerged only at the studio's conclusion: student proposals were not test cases, but rather collections of artifacts capable of provoking research questions.

4.0. CONCLUSIONS

In Findeli's terms, both studios uncovered anthropological issues and delivered proposals; from Dudovskiy's perspective, both uncovered new issues and reframed questions. Both studios conformed to Babbie's idea of yielding new insights without providing definitive answers. Beyond this, student designs, while not definitive, proposed or suggested possible alternatives to normative solutions, wherein lies their value.

The power of the studios as sites for research derived from several attributes: the studios enabled exploration, redefinition, and understanding through design; the process of design inquiry revealed underlying issues, both possible causes and possible solutions; students with different backgrounds developed a variety of approaches and designs to address the issues; and the approaches generated hypotheses susceptible to future testing and embodiment in built form.

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