Access to Healthy Food and Neighborhood Walkability: Insights through Inter-Professional Curricula

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Within the same university, the School of Preventive Medicine and Public Health and the School of Architecture, Design and Planning developed a cross-disciplinary collaboration to improve population health outcomes and health equity. This course was initiated through the production of two professional courses that share syllabi, methodology, literature and other resources, survey methods, and an online teaching site toward the development of a shared community-informed Design & Health Project in two neighborhood communities. This approach recognized that sharing these resources assisted both public health students and architecture students to acquire insights, tools and vocabularies of the other profession and to effectively learn through creative thinking and problem solving. Our program provided students the opportunity to substantively integrate perspectives and approaches by overlapping portions of our respective courses in each department—while providing each student with a strong foundation in their primary field. This approach has fostered innovation and transformative professional practice in both fields by creating a spectrum of opportunities for cross-disciplinary training that integrates population health concepts and concerns through community-based engaged scholarship.

INTRODUCTION
Over the last few years at KU, a set of faculty has developed a health and wellness program in our architecture department. We also have a well-respected Public Health Department at KU Med. However, teaching inter-professional courses has not been established between these two departments.

In 2015, the AIA/ACSA Design + Health Consortium prompted us to develop stronger relationships between the two programs. Then, the ASPPH offered grant support for development of inter-professional projects. We applied and received a grant that allowed us to develop this course in the Fall of 2015 and implemented it in the Spring of 2016. I was a co-principal investigator with Dr. Nikki Nollen. We worked with Dr. Megha Ramaswamy and doctoral stu-dent assistants Matt Kleinmann and Christi Nance, in developing and implementing the course. As the title suggests, our efforts focused on the relationship between health and design through the built environment with emphasis on access to healthy food and neighborhood walkability.

Master of Public Health Program: The Public Health Program has concentrations in Epidemiology, Social & Behavioral Health and Public Health Management. Originally, the framework for this course was designed to be a core behavioral and health course taught by Dr. Nollen. The original course was focused on social and behavioral change health theory. The version that we developed together through this grant has transformed it with an emphasis on health disparities and determinants of health in the built environment.

Keeping health theory as central to student learning, the public health faculty had struggled to find ways to incorporate the field experience so that students could see the determinants of health in action. A primary goal with this course development was to place students on the ground in the communities that they were studying.

Our university is uniquely situated in the state of KS that highlights the incredible inequality that residents face. Two counties, Wyandotte County and Johnson County, abut one another. Yet, according to the Robert Wood Johnson health rankings, Wyandotte County is ranked 101 out of 101 counties as the unhealthiest; and Johnson County just adjacent is ranked # 1 in the state as the healthiest. The location of our university places us in a unique position to see these health disparities first hand. This course addresses these very real socioeconomic and health inequality between these adja-cent counties.

Our project worked within Downtown Kansas City, Kansas (Wyandotte County), which is a low income, underserved commu-nity, and home to a population largely made up of Hispanic, African
American and Refugee citizens with limited healthcare resources, underemployment, a large number of under-utilized parks, open spaces, neglected public ways, and abandoned, deteriorating buildings. We explored two 1.5 mile diameter areas within Wyandotte County directly with community stakeholders to assess the built environment there. Specifically, we inventoried the areas that are food deserts and disconnected with broken or no sidewalks. While the city government, private non-profits, and diverse citizen-formed groups are very active in this area, they have developed multiple and highly varied improvement programs—sometimes in sync with one another and other times seemingly not. Thus, the goal of this proposal was to create a new framework that promotes an inter-professional curricula of public health and architectural professions toward bringing together community stakeholders. Ours was an approach that utilized coursework to engage a broad range of partnerships and coalitions among neighborhood organizations, public and private organizations, and city health department programs while aligning future initiatives around healthy food access and walk-able neighborhoods with specific needs and interests of the community members in Wyandotte County.

PURPOSE OF PROJECT
The purpose of this project was to form a cross-disciplinary collaboration between two University of Kansas departments, Preventive Medicine and Public Health and the School of Architecture, Design and Planning, by developing two professional courses, one Public Health and one Architecture, that facilitated a shared understanding of the interplay of design and health as it relates to neighborhood food access, walkability, and active living. From September 2015 – December 2015, Drs. Nollen (MPH) and Criss (Architecture), along with course GTAs, Christi Nance (MPH) and Matt Kleinmann (Architecture), met monthly to develop shared course syllabi for PRVM 818 Social and Behavioral Aspects of Health and ARCH 600/ADS 560 Design Thinking and Ethical Choices. Our teaching philosophy centers on the importance of applied, place-based learning and, therefore, the developed courses utilized a three-pronged approach to facilitate students understanding of the interplay of design and health. The purpose of this project was to form a cross-disciplinary collaboration between two University of Kansas departments, Preventive Medicine and Public Health and the School of Architecture, Design and Planning, by developing two professional courses, one Public Health and one Architecture, that facilitated a shared understanding of the interplay of design and health as it relates to neighborhood food access, walkability, and active living. This approach recognized that sharing these resources assisted both public health students and architecture students to acquire insights, tools and vocabularies of the other profession and to effectively learn through creative thinking and problem solving. We proposed a program that provides students the opportunity to substantively integrate perspectives and approaches by overlapping portions of our respective courses in each department—while providing each student with a strong foundation in their primary field. We believe that this approach fostered innovation and transformative professional practice in both fields by creating a spectrum of opportunities for cross-disciplinary training that integrates population health concepts and concerns through community-based engaged scholarship.

PLANNING OF A CROSS-DISCIPLINARY, COLLABORATIVE COURSE
One challenge we faced was one of distance. The Department of Architecture is in Lawrence, KS, and the Department of Public Health is located in Kansas City, KS—35 miles apart. Collaboration is difficult. With this grant, we developed and tested new ways of working together. We developed new materials and methods of sharing and doing the work:

1.) through the internet we created ways of sharing literature, videos, and online materials that students would review before class (a flipped teaching model);
2.) through the internet we shared lectures and discussions remotely through Adobe Connect software
3.) through established community places, we met with residents, engaging them in their spaces

We adapted the community-based, participatory research approach. Although not a full-blown CBPR process, we certainly wanted to introduce the students to the idea of engaging community members in their spaces. Through trusting relationships with community stakeholders we had established prior to the course, we were able to arrange for opportunities for students to meet and talk with community residents to identify some of the problems and strengths they felt and understood.

This approach taught principles of participatory design, where we met people where they are in spaces in the city and as a result we were able to directly gain insight about their relationships to the built environment. This applied approach is more palpable and meaningful to all involved.

By seeking to Understand Neighborhood Determinants of Health, we have applied protocols that the Public Health partners had used before and adapted them to fit with the goals of this project. Our specific focus was on establishing ways to understand community walkability and nutritional food access through detailed survey prompts—I’ll highlight the food access work we did in this presentation.

We transformed these protocols by adapting the Women Infant Children standards—examining what access to healthy food would mean in this setting. The standards specify exact quantities and types of food that grocery stores are supposed to supply in order to be certified to receive WIC vouchers.

Going beyond this, we adapted the food assessment protocol to incorporate tools to analyze the stores. We considered the layout of the built environment, the light and views and the means of wayfinding. This modified protocol introduced a new set of prompts and ways of representing the knowledge. We developed a set of
The course was comprised of five stages that required students from the Preventive Medicine and Public Health School to work with students from the Department of Architecture in various settings with community members. This poster was created and presented by doctoral student, Matt Kleinmann, at the National ASPPH Conference.

**Course Material Examples**

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**Figure 1:** The course was comprised of five stages that required students from the Preventive Medicine and Public Health School to work with students from the Department of Architecture in various settings with community members. This poster was created and presented by doctoral student, Matt Kleinmann, at the National ASPPH Conference.
online-tutorials that teach how to draw a three-dimensional form and analysis of a store through SketchUp.

Through this tool, both public health and architecture students were thinking about the building in spatial ways such as: the relationship of the building to the outside city; the interior relationships between shelving casework and the built form; and examining food storage space to imagine what could be done to better optimize access to healthy food.

ESTABLISHING SIX DIVERSE TEAMS
Focused on the highest, most dense area of highest at-risk population for Diabetes Type II and chronic heart disease, we chose to identify this area that represents half of the county’s population (approximately 80,000 people). Through our community partners, we identified six neighborhoods that have an equally distributed population of African American, Latino and Caucasian residents. Each team of students was comprised of a balance of public health and architecture students. We assigned parks and grocery stores in each of these neighborhoods. And, as part of the study, students also chose grocery stores and parks in their own Johnson County and Lawrence communities for comparison between resource-dis-advantaged and resource-advantaged neighborhoods. In implementing this course, we identified 5 phases:

#1: Discover: First, we created spaces where students discovered each other and the differences between their professional disciplines. Students shared their unique disciplinary approaches to the research through an interactive classroom environment. It was challenging to figure out how to create a personal connection through the internet as they presented their assigned reading analyses to one another from remote locations. However, logistically this is what made teaching together possible. From the start, they heard and learned vocabulary and ideas that were unique to their disciplinary studies.

#2: Engage: At this stage, students met each other for the first time in a storefront space for community engagement events—central to the six neighborhoods. Following this initial meeting, we introduced a Photovoice process to self-selected residents from the six neighborhoods, where the students and residents got to know one another. Students started to hear the residents’ stories of their communities and we began the Photovoice process by giving out cameras to our resident partners.
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Figure 3: The residents shared their photos and stories with the students, where information was processed through discussion and notations. Credit: Matt Kleinmann

**#3: Assess:** Over the next three or four weeks, residents went out into their communities to document health disparities they found in the built environment where they found assets and challenges of their own communities. Simultaneously, students used the UNDO protocols to go out and observe, carefully and respectfully determining what the factors of the built environment were and reflecting upon the issues they found on the ground regarding walkability in parks and access to healthy food.

**#4: Report:** The students then presented their results of the surveys and documented work to each other in class. The residents shared their photos and stories with the students, where information was processed through discussion and notations. The students understood the challenges the community residents faced and began to compare the research, their own observations and the residents’ insight. They were able to begin to correct and expand their thinking because of this engagement.

**#5: Reflect:** At the end of the semester, the students were able to gather the data, insight and graphic documentation into a class-wide document. This document was displayed as an exhibit that drew over 100 visitors from the community—including those residents that had participated, civic leaders, foundation representatives and policy makers—in an environment where good food and beautiful spring weather was conducive to conversations about the work.

**CREATING NEW TOOLS**

Architecture students were able to generate graphic representations of the findings—demonstrating the analysis of the existing built environment in comparison to proposed changes. They explored simple ‘small change’ options such as reconfiguring the shelving and casework, developing alternative display systems, and installing new refrigeration elements. They also proposed deeper investments such as re-thinking the storefront systems to improve visibility, branding and better daylight quality.

Since the course was taught, Matt through a CDC grant-funded position was able to go further and leverage the student findings to generate conversations with the WIC Program representatives to identify stores that could become WIC eligible. In this work we found that there were 16 WIC eligible stores in Wyandotte County but only 3 available in our defined area with the highest population of those at greatest risk. This work allowed us to identify some of the barriers and opportunities to help policy makers reconsider the corner store bodegas in the area as potential WIC eligible stores.

**STUDENT REFLECTION**

One student realized that her engagement with residents helped her identify and learn new things about their community and for her to think differently about her own community as a result of this project. Another student wished that she had been better prepared on appropriate ways to collect data in communities. She became sensitive and self-aware of her presence in communities as a result of this work.
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LESSONS LEARNED

1. Be Flexible in letting students mentor each other—create more opportunities for students to get to know each other at a personal level, across disciplines and provide spaces for inter-professional mentoring. Also, be willing to disrupt the class schedule by holding engagement activities at times and locations more fitting to the community’s schedule—meet people where they are.

2. Be Playful by allowing for more iterations and time for students to digest and reflect.

3. Transfer Knowledge between undergraduate and graduate students, design and health cultures and between academia and the community. Online sharing of resources and the online classroom exchanges were often technically difficult to pull off.

4. Think Strategically about how to engage the design thinking process as a tool in designing the class methodologies. The design of this course is a work in progress that we will continue to develop.

THE COURSE AFTER THE COURSE

The purpose of this project was to form a cross-disciplinary collaboration between two University of Kansas departments, Preventive Medicine and Public Health and the School of Architecture, Design and Planning, by developing two professional courses, one public health and one architecture, that facilitated a shared understanding of the interplay of design and health as it relates to neighborhood food access, walkability, and active living. Through an approach that centered on both didactic and experiential learning, students learned about each other’s respective disciplines as they relate to the built environment and health and completed an applied project that included neighborhood assessments and interaction with community members. The culminating experience was a community exhibition in which students presented back to the represented communities a summary of their findings and attainable design solutions for improving food access and walkability.

As a result of the generative work in the course and the public visibility we provided, we have been able to find grant funds to 1.) further develop engagement with community residents and policy makers; 2.) generate design/build prototypes for discussion and development;
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and 3.) we are facilitating policy changes in the parks and stores in these neighborhoods.

**DISSEMINATION ACTIVITIES**

We have engaged in three primary dissemination activities: 1.) Students presented their findings, in poster format, to community members and stakeholders during a Community Exhibition held on May 5, 2016. A sample of one of these posters, which included a summary of key UNDO findings and design solutions developed by architecture students, is attached. 2.) We presented a poster outlining this project at the 2016 Annual Meeting of the Association of Schools and Programs of Public Health (ASPPH), 3.) We participated in an ASPPH webinar on June 14, 2016.

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