Lifelong Learning in Chicago

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for Dr. Leodis Scott at the LearnLong Institute

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<u>Project Summary</u>

This project was undertaken with Dr. Leodis Scott, a professor at DePaul University and the co-founder of the LearnLong Institute for Education and Learning Research. The goal of this project was to look at where Chicago, IL currently stands as a "Learning City." A Learning City bases its education model as a service to society, where learning takes place throughout one's life, giving all citizens the knowledge and opportunity to prosper. To map learning in Chicago, we mapped learning facilities that fell within the "Learning to Be" category of Canada's Composite Learning Index, simplifying them as locations to access Media, Culture, and Sports.

The major concerns in the project came from accessibility to data about locations, and location decisions. Datasets from the City of Chicago Data Portal were extensive, but in most cases, difficult to classify into our three categories, or lacking known facilities. In the final output, we acknowledge that the maps are not decisive; for example sports stadiums were only placed under Sports, but these stadiums hold shows, concerts, and workshops that can fulfill all three categories of lifelong learning. Similar problems arose when choosing datasets, such as cultural centers whose business licenses specify liquor distribution, or a museum dataset that ignored small scale cultural museums. These issues led us to unconventional sources like Yelp.com to find location data.

At the core of this project lays the fact that this is the first instance of looking at a U.S. city in terms of LifeLong Learning. Whereas Canada has test results and other such datasets to analyze, we were hindered by unexpected obstacles such as Hispanic peoples categorized as White in U.S census data and highly interpretive datasets. In spite of procedural setbacks, the outcome of this project shows trends in the locations of learning facilities and income and education status, suggesting unequal lifelong learning facility distribution both demographically and geographically.

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Introduction

Lifelong Learning is the continuation of education beyond formal education. At the simplest level, LifeLong Learning is achieved through attending classes, events, exposure to different people and places, training in and outside of class, and vocational and non-vocational training. This kind of education continues through self-action beyond and sometimes in spite of regular schooling and institutions.

While Canada has become the frontrunner in analyzing and implementing Lifelong Learning into their cities, the United States is yet to even regularize use of the term Lifelong Learning. The client, Dr. Leodis Scott, is a college professor who believes that Lifelong Learning would be a step in the right direction for education in this country. Chicago, Illinois is the third highest populated city in the country, and with new construction, low high school graduation rates, and infamous gentrification, is the most fascinating city for mapping when it comes to learning and education.

The greatest problem with this project is its originality in the United States. This country as a whole does not have the datasets necessary to observe Lifelong Learning in the same manner that Canada and some European countries do. Dr. Scott has already written a book on the topic of Learning in the United States. He sees Lifelong Learning as an education product that is created by and for all members of society. This includes taxpayers, business and political peoples coming together as partners in order to confront education (Scott, 2015), an issue that is currently running rampant in Chicago. In order for Chicago to become a Learning City, it must implement learning opportunities that can be invested in throughout a citizen's life, beyond the regular schooling system. The end goal of building a successful Learning City is giving the population personal and financial growth and opportunities that they would not have otherwise; allowing the mental and monetary value of all Chicagoans to prosper.

<u>Needs Assessment</u>

Dr. Scott worked with us to determine how we would map physical locations of lifelong learning within three indicators of "learning to be," the subject pillar of lifelong learning in this project. Lifelong learning facilities are grouped into three categories: media, sports, and culture. Access is determined by neighborhood, and demographic data is used to determine who has access to lifelong learning.

The concept of "lifelong learning" and "learning cities" are foreign to Americans. This project is the first mapping project that Dr. Scott has endeavoured through his Lifelong Learning research, and comparable American projects do not exist, nor do international lifelong learning mapping projects. Our first meeting with our client focused on how we define Lifelong Learning for citizens in United States, particularly Chicago. While Canada has its own Composite Learning Index (CLI) that measures the progress the country has made in Lifelong Learning, the United States does not have the testing measures in place that Canada does, making it difficult for our group to illustrate Learning in the same way.

Dr. Scott provided Canada's CLI to provide a basis of methodology and to share the data that has been previously used to measure lifelong learning. He explained that in mapping Chicago, he was most interested in one of the four pillars of learning, *Learning to Be.* This was the most important part of our Needs Assessment. The other pillars look at Learning to Know, Do, and Live Together, whose indicators and measures were either extremely specific or extremely broad, prohibiting the application of the American data available to us. Learning to Be has 5 indicators: Exposure to Media, Learning through Culture, Learning through Sports, Broadband Internet Access, and Access to Cultural Resources. The provided CLI was from 2010; we decided that access to broadband and exposure to media were outdated in terms of being separate indicators, and thus merged them. Further, our project is examining both the locality of cultural resources and access to them, and so we also elected to merge learning through culture and access to cultural resources.

Chicago is a large and engaging city; mapping every single location where citizens engage in "learning to be" is decidedly impossible, due to both the unavailability in data and the sheer amounts of locations. As an example, music lessons could be included as a measure of learning through culture. In Chicago, there are dedicated studios where music lessons occur; however, there are also a multitude of private lessons, including lessons provided within a family. "Learning to be" occurs throughout time and space; mapping "learning to be" cannot be

exhaustive. Rather, we sought to map centers of "learning to be" and locations where the public may "learn to be" together. Therefore, we mapped nine types of "lifelong learning facilities", or locations where people can come together to "learn to be", grouped into indicators from the CLI: "media," "sports," and "culture." The media indicator consists of two lifelong learning facility types: libraries and Connect Chicago locations. The sports indicator also consists of two lifelong learning facility types: sports facilities provided by the Chicago Park District and professional sports stadiums. The culture indicator consists of three types of lifelong learning facilities: cultural centers, museums, and community gardens. Most of the locations we mapped are free to use. However, there are locations unique to Chicago where lifelong learning occurs, namely the museums and sports stadiums, and it would be a highly inaccurate representation of Chicago's lifelong learning to exclude these institutions.

Dr. Scott expressed interest in using demographic data of community areas, or neighborhoods, in order to determine who has access to lifelong learning. The demographics he was most interested in were income, education, age, gender, and race. After encountering issues in how Hispanics are counted in the US census, we excluded race from the final maps so as not to lead to confusion (mapping race would have to include frontlines communities as "white", and a separate map would have to differentiate the two, but would not include any other racial group).

The basis of the entire project centers around the term "Learning City." In Dr. Scott's book, he defines his version of a Learning City as a society where all members have access to lifelong learning facilities, and that they make use of these facilities. When considering the facilities that fit into our three pillars, we aimed to display Chicago learning facilities on a map as the first step in considering where the city stands as a Learning City, and to think about the next steps LearnLong Institute needs to consider in making Chicago an applicable, accessible Learning City.

Specific data requirements and processing requirements for display of data are described in detail.

Data requirements to display lifelong learning facilities in Chicago are the locations of lifelong learning facilities, the number of facilities in a neighborhood, and the people that live in each neighborhood. Key attributes for lifelong learning facilities are their location, either as an address or coordinates, the pillar they belong to (media, sports, or culture), and their specific type. Attributes for neighborhoods will be their name and polygonal shape. Attributes for people consists of census tract ID, income, education, age, and gender. Figure 1 presents the relationship of the necessary data and their attributes in a Chen notation entity-relationship diagram.
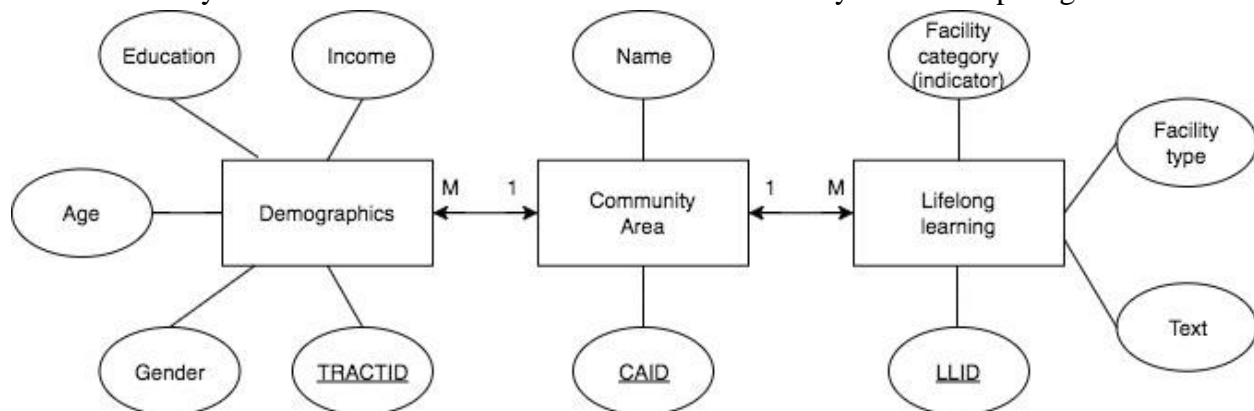

Figure 1. Chen entity-relationship diagram. There are many demographics (census tracts) in one community area, as well as many lifelong learning facilities in one community area.

Several data processing functions are required to create the final products with these attributes. First, the Cook County census tract shapefile is joined to the census table, based on the census tract ID feature key. The census data displayed with a choropleth map, and displays the mean income, percent of the population with a high school diploma or more, mean age, and sex ratio (male to 100 females) per census tract; this data did not require normalization for the map. Classification of census data was determined based on each attribute's data distribution, and classes were rounded to numbers divisible by five or ten.

Community areas were displayed over the census tracts. O'Hare was removed from the analysis because parts of O'Hare are in DuPage county, which created a gap in demographic

data. The community areas were joined spatially with the lifelong learning facilities to determine how many facilities are in each neighborhood.

Lifelong learning facilities were collected from either the City of Chicago Data portal or from yelp.com, thus both coordinate and address locations were processed. Coordinates were displayed using the X,Y function in ArcMap, while addresses were geocoded by ESRI. This created a point map of the lifelong learning facilities. For maps that also display census data, lifelong learning facilities were categorized by indicators (media, sports, and culture) rather than type (libraries, museums, etc.).

Data Acquisition

Data sources for this project are from the City of Chicago Data Portal, the American Survey, and, unusual to this type of project, yelp.com. The data collection process for this project speaks to the lack of consciousness of the public to the concept lifelong learning, and to the unreliability of the Chicago Data Portal for non-city managed locations. Here, each data piece is described individually in a 'data library', including technical aspects of the ArcMap object and processing steps for each piece of data are described in further detail.

File Name: Community Areas
Source: City of Chicago Data Portal
Description: boundaries of 77 neighborhoods
Processing Steps: Edit vertices to delete O'Hare; spatial join with lifelong learning facilities to determine number in neighborhood
Spatial Object Type: Polygon
Attributes: FID, Shape, Perimeter, Community, Shape_len, Shape_ Area, Area, Comarea, area_number, Com_areaID, Area_num_1
Data Format: Shapefile

File Name: Census Tracts
Source: DePaul University (originally from TIGER)
Description: Shapes and locations of census tracts of Cook County
Processing Steps: Clip to Community Areas
Spatial Object Type: Polygon
Attributes: FID, Shape, GEOID10, Namelsad10, Aland10, Awater10, INTPTLAT10, INTPLON10, Shape_leng, Shape_Area
Data Format: Shapefile

File Name: Mean income
Source: United States Census Bureau, American Fact Finder
Description: Mean income of each census tract
Processing Steps: Table join to census tracts using GEO.id2 feature key

Spatial Object Type: Polygon

Attributes: GEO.i, GEO.id2, GEO.display-label, HC01_EST_VC01, HC01_MOE_VC01, HC02_EST_VC01, HC02_MOE_VC01, HC03_EST_VC01, etc.

Data Format: comma-separated value (.csv) file

File Name: Percent population with high school diploma or higher

Source: United States Census Bureau, American Fact Finder

Description: The percent of the population in each census tract that has a high school diploma or more (associates, bachelors, other higher degrees)

Processing Steps: Table join to census tracts using GEO.id2 feature key

Spatial Object Type: Polygon

Attributes: GEO.i, GEO.id2, GEO.display-label, HC01_EST_VC01, HC01_MOE_VC01, HC02_EST_VC01, HC02_MOE_VC01, HC03_EST_VC01, etc.

Data Format: comma-separated value (.csv) file

File Name: Median Age

Source: United States Census Bureau, American Fact Finder

Description: Median age in each census tract

Processing Steps: Table join to census tracts using GEO.id2 feature key

Spatial Object Type: Polygon

Attributes: GEO.i, GEO.id2, GEO.display-label, HC01_EST_VC01, HC01_MOE_VC01, HC02_EST_VC01, HC02_MOE_VC01, HC03_EST_VC01, etc.

Data Format: comma-separated value (.csv) file

File Name: Sex ratio

Source: United States Census Bureau, American Fact Finder

Description: The sex ratio of male to 100 females in a census tract

Processing Steps: Table join to census tracts using GEO.id2 feature key

Spatial Object Type: Polygon

Attributes: GEO.i, GEO.id2, GEO.display-label, HC01_EST_VC01, HC01_MOE_VC01, HC02_EST_VC01, HC02_MOE_VC01, HC03_EST_VC01, etc.

Data Format: comma-separated value (.csv) file

File Name: Libraries

Source: City of Chicago Data Portal, Chicago Public Library

Description: Locations of Chicago's city libraries.
Processing Steps: Geocode addresses
Spatial Object Type: Point
Attributes: Name, Hours of Operation, Cybernavigator, Teacher in the Library, Address, City, State, ZIP, Phone, Location
Data Format: comma-separated value (.csv) file

File Name: Connect Chicago locations
Source: City of Chicago Data Portal, Connect Chicago
Description: Locations of Connect Chicago, a program providing free WiFi and assistance in using the internet and computers
Processing Steps: Removal of library locations, XY data display
Spatial Object Type: Point
Attributes: ID, URL, Organization Name, Organization Type, Address, Building and Street, City, State, ZIP Code, Phone Number, Hours, Website, Appointment, Internet, WiFi, Training, PC Use Restrictions, Hardware public, Assistive Technology, Internet Upload, Internet Download, Volunteers Used, Volunteers Used How, Volunteers Wanted How, Public WiFi Detail, Nearest Parking, Nearest Parking Detail, Public Transportation Detail, Time Allowed per user, Time Allowed per User Detail, Room List, Handicap Access Detail, Friendly Description, Agency Leadership Contact, Agency Staff Person Contact Email, Twitter Handle, Training Type, Flickr tag, Training Headline, Training Detail, Training Description, Training URL, Location Leadership, Location Leadership Email, PCC Staff person, PCC Staff Person Email, Latitude, Longitude, Location
Data Format: comma-separated value (.csv) file

File Name: Parks – Chicago Park District facilities (current)
Source: City of Chicago Data Portal, Chicago Park District
Description: All city-managed individual sports facilities.
Processing Steps: Remove irrelevant (non-sports) facilities, remove repetition in spreadsheet so that 1 facility per park is displayed on map; XY data display
Spatial Object Type: Point
Attributes: ObjectID, Park_No, Park, the_geom, Facility_N, Facilitiy_T, X_coord, Y_coord, GISobjID
Data Format: comma-separated value (.csv) file

File Name: Sports stadiums
Source: yelp.com, 'Professional Sports Teams' tag
Description: Collected data for professional sports stadiums in Chicago.
Processing Steps: Collecting addresses, geocoding by address

Spatial Object Type: Point
Attributes: ID, Name, Address, City, State, ZIP, Category, Type
Data Format: comma-separated value (.csv) file

File Name: Cultural centers
Source: yelp.com, 'Cultural Centers' tag; Chicago Park District 'Cultural Centers' webpage
Description: Collected data for cultural centers in Chicago.
Processing Steps: Collecting addresses, geocoding by address
Spatial Object Type: Point
Attributes: ID, Name, Address, City, State, ZIP, Category, Type
Data Format: comma-separated value (.csv) file

File Name: Museums
Source: yelp.com, 'Museums' tag
Description: Collected data for all museums in Chicago, including world-famous institutions like the Field Museum and unknown attractions like Stampland.
Processing Steps: Collecting addresses, geocoding by address
Spatial Object Type: Point
Attributes: ID, Name, Address, City, State, ZIP, Category, Type
Data Format: comma-separated value (.csv) file

File Name: Community gardens
Source: cuamp.org (Chicago Urban Agriculture Mapping Project)
Description: Community gardens only (CUAMP also includes demonstration gardens, urban farms, etc.)
Processing Steps: Display XY data
Spatial Object Type: Point
Attributes: Growing Site Name, Is Growing Site Locked?, Evidence of Support Organizations?, If its a community garden, is it collective or allotment?, Choose growing site types, Water, Compost system, Structures and features, Season extension techniques, animals, Address, Food Producing, Community Garden, Is growing site dormant?, latitude, longitude, address, Ownership, Other support organizations, growing site website, Facebook, Is growing site fenced?, Description, Ward, Communities, Public Contact Info, Growing site image, Municipalities
Data Format: comma-separated value (.csv) file

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Data Analysis and Visualization

The process of visually analyzing the collected data for optimal visual display and the numeric data analysis are described.

9 different types of points were mapped in Chicago with a grand total of 1,129 total points. Especially for mapping over census data (which is already very visually dynamic in itself), the points were classified into their indicators for use on census maps; libraries and Connect Chicago locations are simply "media," sports facilities and stadiums are "sports," and cultural centers, museums, and community gardens are "culture." The primary reason for this broad classification is visual simplicity and communication; 9 different point colors is much more crowded than 3. However, because distinctions within each indicator do exist, a separate map was included that only displays lifelong learning facilities and neighborhoods is included.

Lifelong learning facilities and neighborhoods were spatially joined to determine the number of facilities in each neighborhood. The neighborhood with the most learning facilities and the three neighborhoods with the least were compared using census tract information to examine the influence of income, education, age, and gender on the availability of lifelong learning facilities to residents of a neighborhood. This analysis was then run again on a per-capita basis: the census tracts of neighborhoods with the most lifelong learning facilities per capita and the neighborhoods with the least facilities per capita were examined for general trends.

<u>Results</u>

West Town residents have the highest geographic access to lifelong learning. Fuller Park, Burnside, and West Elsdon have the lowest; however, facilities population of community areas are not equal. Fuller Park, Burnside, and West Elsdon combined have less population and area than West Town. Per person, these four neighborhoods are very similar, and East Garfield Park has the most facilities per person while Brighton Park has the least. Visually, there is still a pattern of more learning facilities present in Northern neighborhood like West Town than Southern neighborhoods like Fuller Park.

Maps 1 to 4 show the lifelong learning facilities, grouped into the three indicators, over census tract-level demographic information and Chicago's neighborhoods. In general, there are more lifelong learning facilities on the North Side, and more facilities in wealthier areas and in more educated areas West Town, the neighborhood with the most lifelong learning facilities (56 total facilities), is also a wealthy neighborhood, with the mean income of its census tracts ranging from $70,000 to $188,000 (Map 2) and the percent of the population with a diploma or more ranging from 72% to 98% (Map 3). Burnside, Fuller Park, and West Elsdon all have the lowest number of lifelong learning facilities (2 each, both sports facilities). These neighborhoods have income levels ranging from $30,000 to $59,000 (Map 2), and the percentage of the population with a diploma or more range from 63% to 79% (Map 3). Though this appears to indicate a trend, some border neighborhoods disrupt these income and education trends. Mount Greenwood, on the far Southwest side, has only 4 lifelong learning facilities, but has a mean income that ranges from $85,000 to $102,000 (Map 2) and the percent of the population with a diploma or more ranges from 93% to 97% (Map 3). Table 1 (Appendix B) shows a summary of the amount of lifelong learning facilities in each neighborhood. No clear gender or age differences between neighborhoods with many lifelong learning facilities and neighborhoods with few lifelong learning facilities were observed (Maps 4 and 5).

Table 2 (Appendix B) provides a more nuanced summary of lifelong learning facilities in each neighborhood per capita. The number of facilities was divided by the population (as of 2010) of each neighborhood to better balance population disparities and to provide a more in-depth analysis. West Town, for example, as a population of 81,432, while Fuller Park's population is only 2,876. Lifelong learning facilities per person in each neighborhood presents a very different perspective than total facilities per neighborhood. While West Town and Fuller

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Park were opposite ends of the spectrum for number of facilities in the neighborhood, per person, they are very similar, having 0.0068769 facilities per person and 0.00069541 facilities per person, respectively. Per person, Fuller Park has more lifelong learning facilities than West Town.

Per person, East Garfield Park has the most lifelong learning facilities per person at 0.0013614, and Brighton Park has the least at 0.00008168. The trends previously observed in lifelong learning facility abundance are absent in a per-person analysis. East Garfield Park's income ranges from $22,000 to $56,000 (Map 2), placing it in a lower income bracket, and the percent of the East Garfield Park population with a high school diploma or more ranges from 60% to 92% (Map 3). Income in Brighton Park ranges from $38,000 to $57,000 (Map 2) and the percent of the population with a high school diploma or more ranges from 41% to 69% (Map 3), possibly indicating that the population with the least access to lifelong learning in Chicago is also that which has the least formal education. East Garfield Park does have a wider median age range of 25 to 35, compared to Brighton Park's 30 to 35. East Garfield Park has a slightly lower male to female ratio than Brighton Park that ranges from 68:100 to 120:100 (compared to Brighton Park's 80:100 to 120:100).

Lifelong Learning Facilities in Chicago, IL

Legend

- ◇ SportFacilities
- ◆ Stadiums
- ▪ Museums
- ▪ CommunityGardens
- ▪ Cultural Centers
- ▲ Libraries
- ▲ Connect Chicago

0   2.5   5   10 Miles
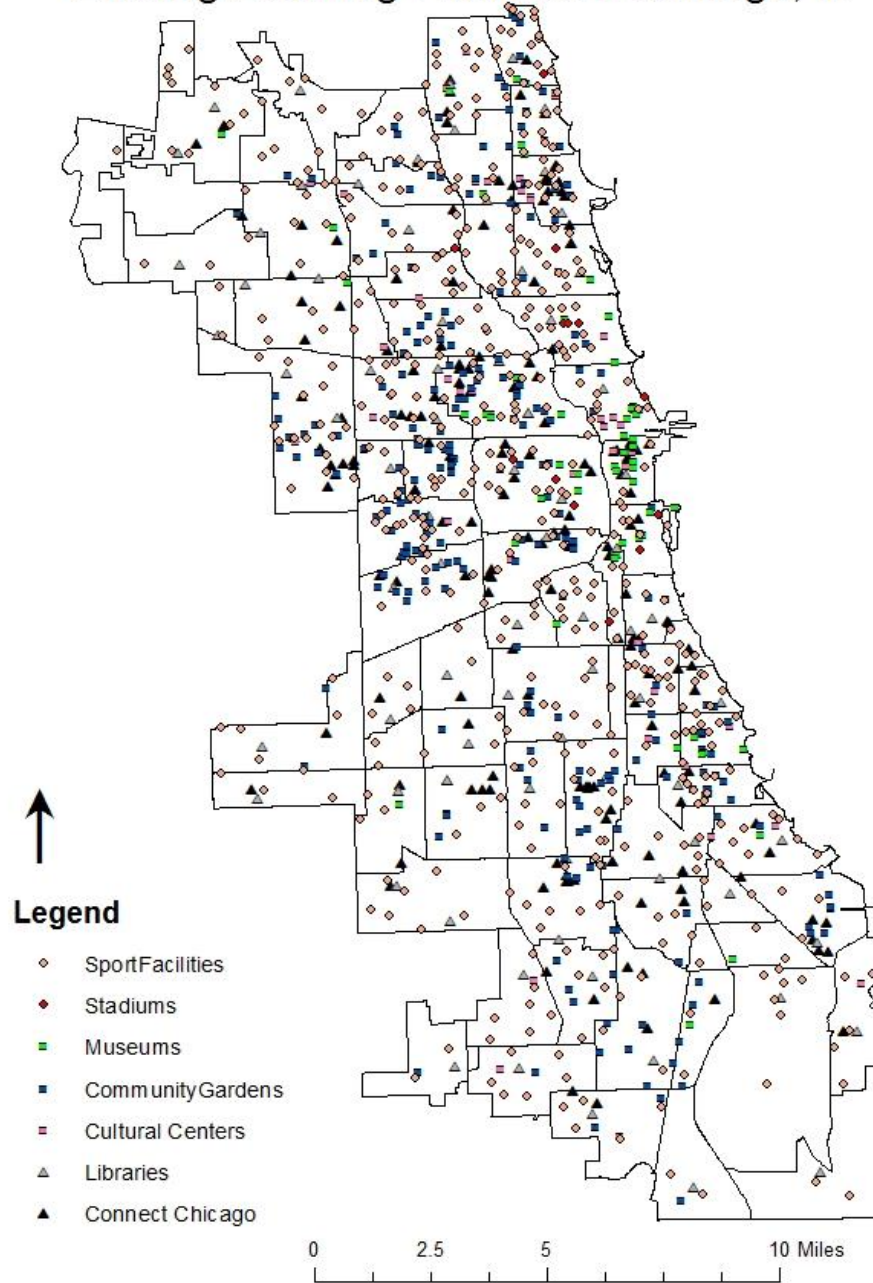
Map 1: Lifelong learning facilities in Chicago by type. Note that circles represent media, squares represent culture, and triangles represent sports.

Income and Learning Facilities In Chicago, IL

Legend

- ◆ Media
- ◆ Sports
- ◆ Culture

Income

☐	0 - 25000
☐	25001 - 40000
☐	40001 - 50000
☐	50001 - 60000
☐	60001 - 75000
☐	75001 - 90000
☐	90001 - 115000
☐	115001 - 140000
☐	140001 - 175000
☐	175001 - 270000

0   2.5   5   10 Miles
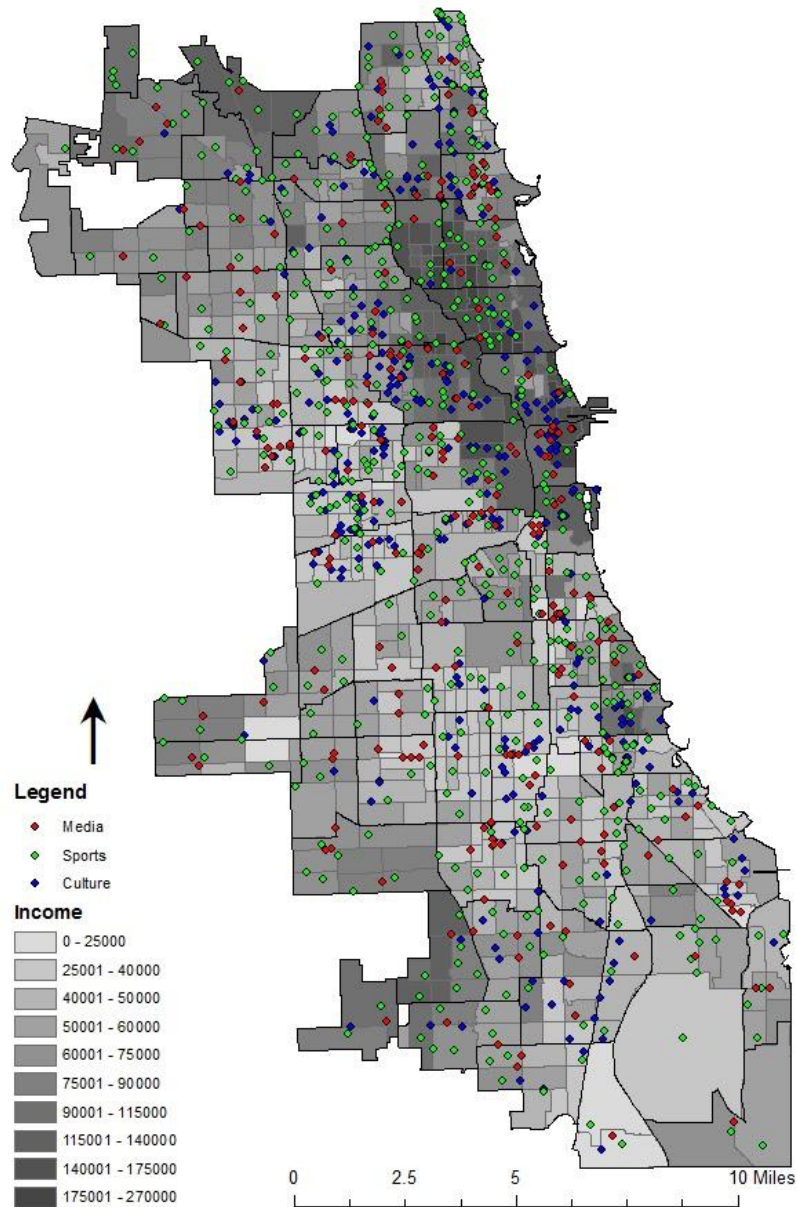
Map 2: Average income per community area and Learning to Be Facilities in Chicago.

Education and Lifelong Learning
in Chicago, IL

Legend

♦ Media
♦ Sports
♦ Culture

Percent population with high school diploma or more

- 38 - 44
- 45 - 50
- 51 - 56
- 57 - 63
- 64 - 69
- 70 - 75
- 76 - 81
- 82 - 88
- 89 - 94
- 95 - 100

0   2.5   5   10 Miles
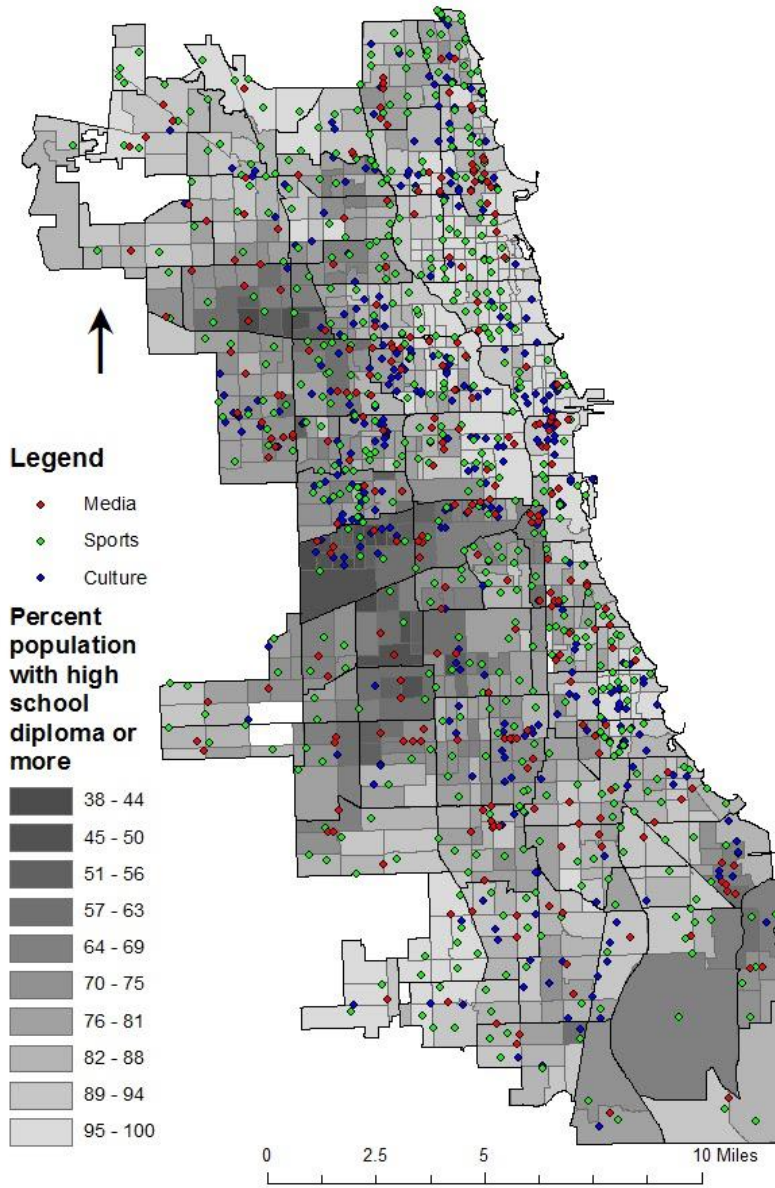
Map 3: Percentage of residents per community area that have at least a high school diploma and Learning to Be Facilities in Chicago.

Age and Lifelong Learning Facilities in Chicago, IL

Legend

- ◇ Sports
- ◆ Culture
- ◆ Media

Median Age

- 20 - 25
- 26 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 61 - 70

0   2.5   5   10 Miles
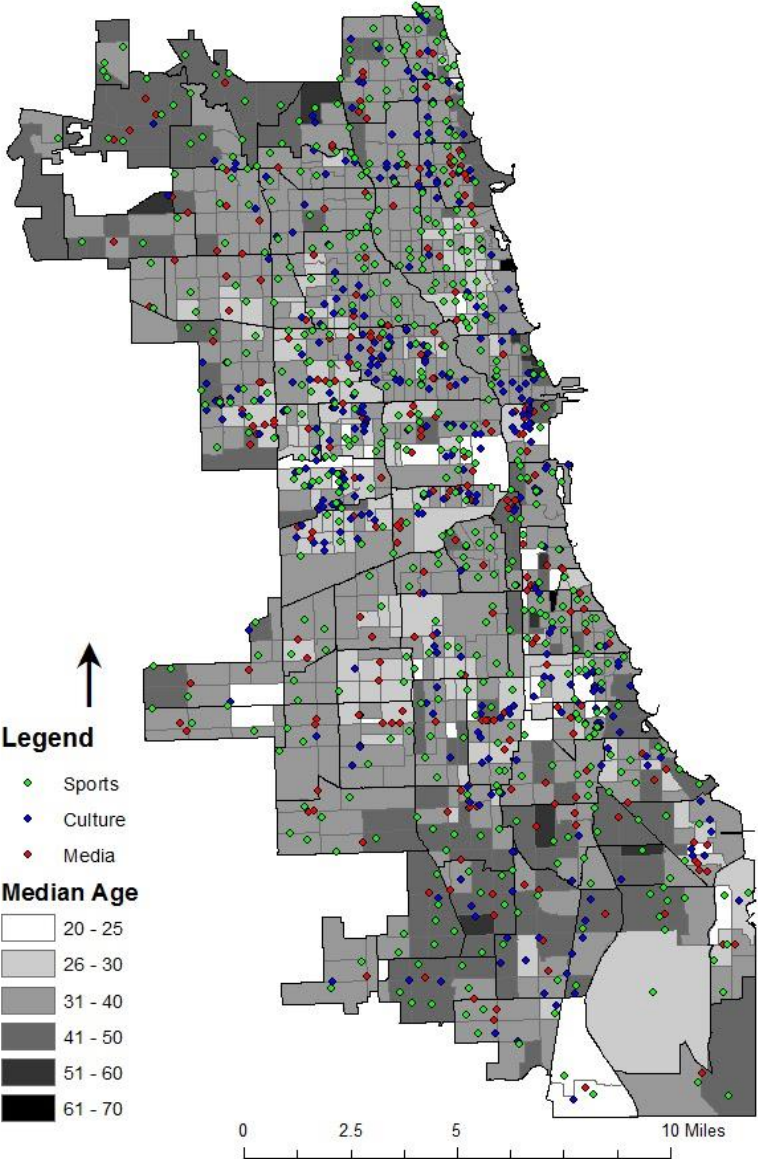
Map 4: Median Age of residents per community area and Learning to Be facilities in Chicago.

Sex and Lifelong Learning Facilities in Chicago, IL

Legend

- ◇ Sports
- ◆ Culture
- ◆ Media

Sex ratios (males to 100 females)

▢	35.1 - 75.5
▢	75.6 - 89.2
▢	89.3 - 102.3
▢	102.4 - 119.8
▢	119.9 - 160.2
▢	160.3 - 735.5

0   2.5   5   10 Miles
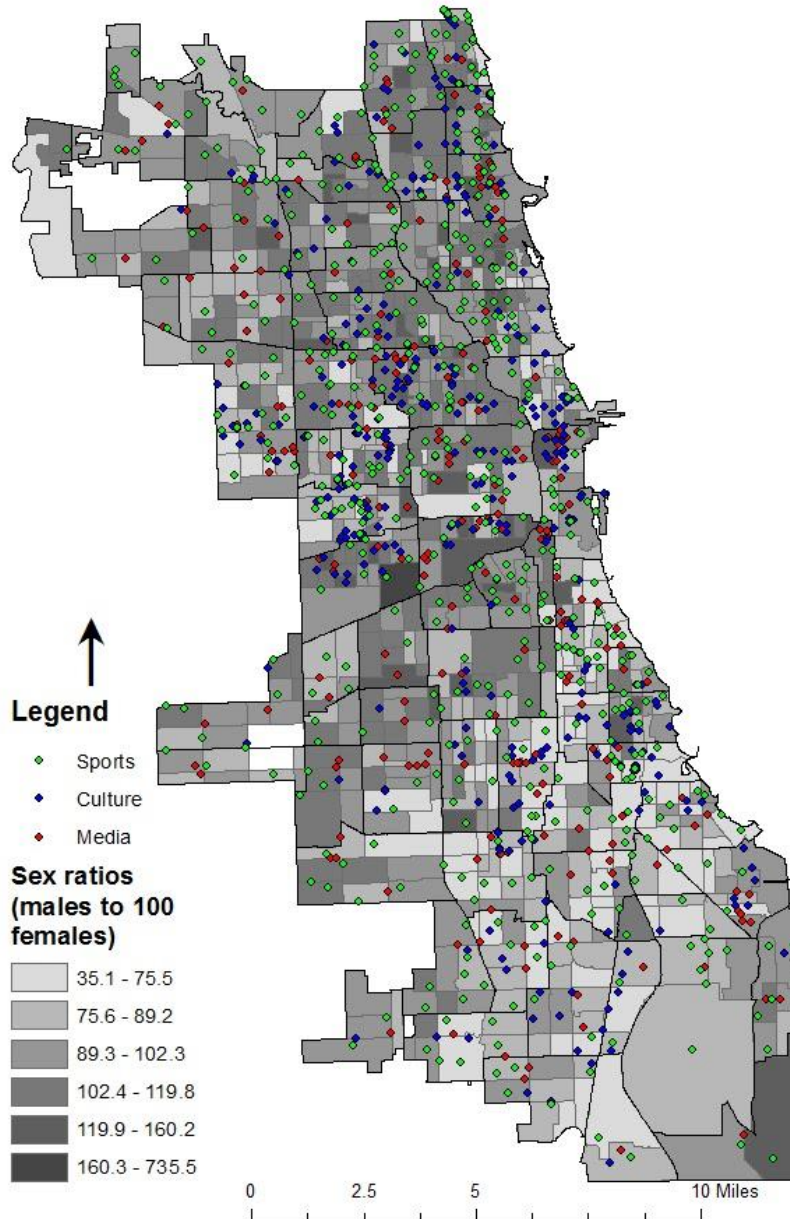
Map 5: Ratio of men to women per community area and Learning to Be Facilities in Chicago. Higher ratios corresponds to more men per each woman.

Conclusions and Recommendations

This project mapped three categories of Learning Facilities as inspired by the Canadian CLI: Media, Culture, and Sports. These points were mapped over census data to create four maps comparing learning facilities locations to income, education level, age, and gender (sex ratio). An additional map was included to display each type of lifelong learning facility that was mapped in this project, grouped by shape into the categories media, culture, and sports. The number of facilities in each neighborhood was determined; then, to account for population differences, the number of facilities per person in each neighborhood was determined.

Fuller Park has the lowest number of Learning Facilities, while West Town has the most. However, per-person, Fuller Park ranks slightly above West Town. Per person, East Garfield Park has the highest amount of lifelong learning facilities, while Brighton Park has the least. Through visual and data analysis, there is an indicated trend of neighborhoods having higher Facilities in more affluent communities. However, there are also counterexamples to this; for example, with a median income range of $85,000 to $102,000 and over 90% population with at least a high school diploma, Mount Greenwood currently ranks in the bottom 10 for Learning Facilities per person. Additionally, though East Garfield Park has the highest amount of lifelong learning facilities per person, its residents fall into lower income brackets than residents of West Town. There was no clear trend between lifelong learning facilities and age or gender.

When measuring population to facilities, all three types of facilities were included at equal value. The type of facility that is present in the neighborhoods is still something that can be further investigated. For example, Fuller Park's lone two facilities were sports facilities. This was a trend for the community areas with the lowest facilities- Fuller Park, Burnside, and West Elsdon were all tied at two Sports Facilities total for lifelong learning. Changing the value placed on any type of learning facility may change the trends determined by this project.

This project was completed to serve as the base for follow-up research by the LearnLong Institute. The data acquisition for these studies proved to be the most difficult, as lifelong learning can take place through space and time, and is difficult to pinpoint in mapping and data analysis. For example, workshops hosted through companies like Michael's craft store are an example of lifelong learning, but not all of these stores host workshops, and those that do only do so periodically for a scheduled event. Furthermore, as evidenced by unorthodox methods that were used to collect data for this project, neither the city of Chicago nor the United States as a whole has not prepared data useful for Lifelong Learning analysis.

In follow-up projects, the values given to all the types of learning facilities should be considered, along with distance and accessibility by transportation. In the early stages, we planned to include distance to transit stops. However, this is a complex aspect of Chicago; living near a train stop is more profusive than living near a bus stop, and living far from either can be either be regarded positively as a suburban neighborhood in which residents have cars, or it can an example of inaccessibility. The value of distance to the type public transit, CTA, Metra, bus, train, etc. is something that fell outside of the range of this project and could be considered in

continued research to better measure how geographically accessible lifelong learning facilities are.

The Canadian Learning Index provided guidance for location selection and categorization.

FIGURE 1: THE 2010 COMPOSITE LEARNING INDEX
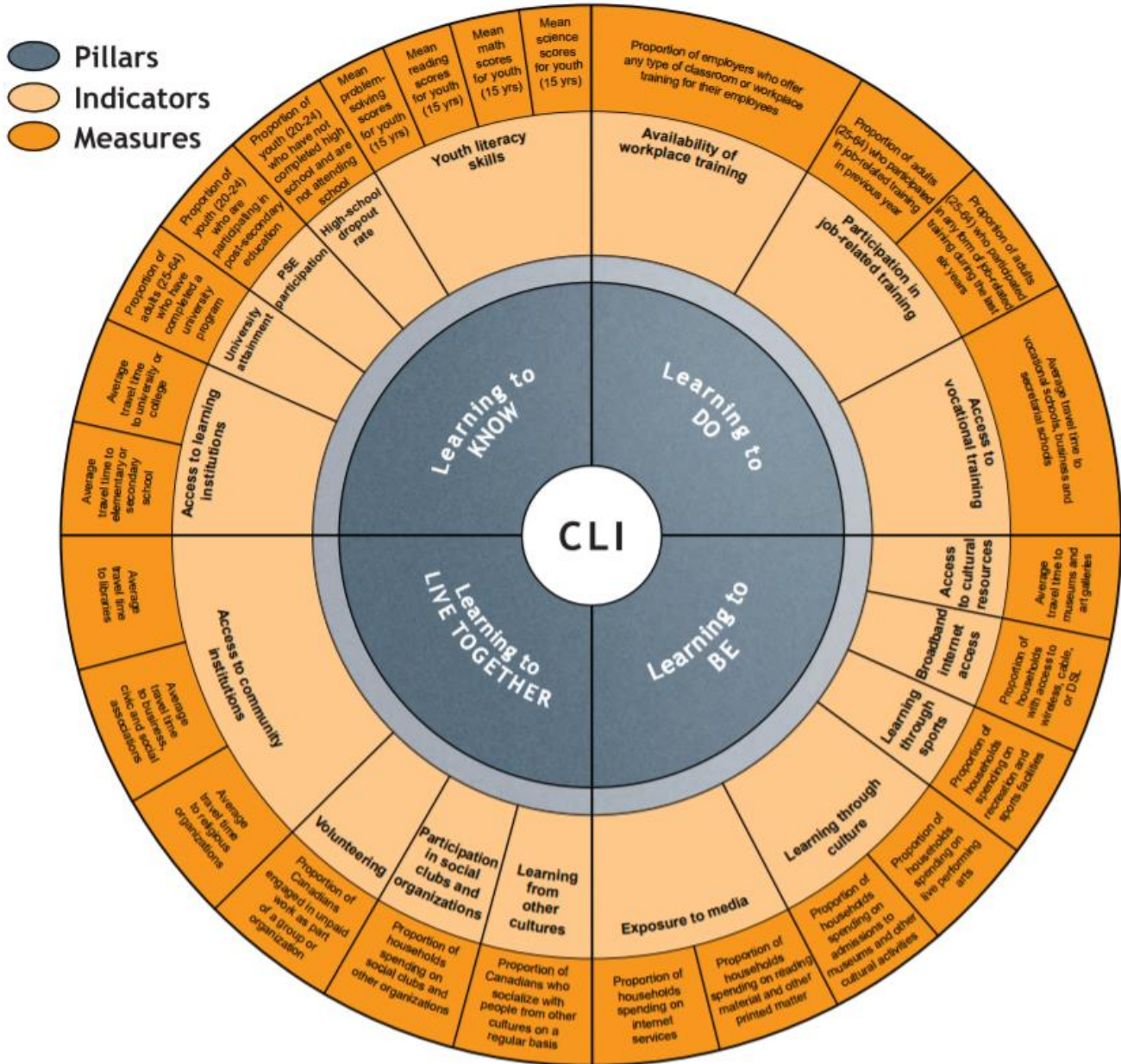
Summaries of lifelong learning facilities per neighborhood (Table 1) and lifelong learning facilities per neighborhood per capita (Table 2).

Table 1. Lifelong learning facilities per neighborhood.

Neighborhood	Wifi spots	Libraries	Stadiums	Sport facilities	Commu-nity gardens	Museu-ms	Cultural centers	Total: media	Total: sports	Total: culture	Total: lifelong learning facilities
DOUGLAS	5	2	0	4	2	0	1	7	4	3	14
OAKLAND	3	0	0	4	0	0	0	3	4	0	7
FULLER PARK	0	0	0	2	0	0	0	0	2	0	2
GRAND BOULEVARD	4	1	0	11	2	0	1	5	11	3	19
KENWOOD	1	1	0	6	2	0	0	2	6	2	10
LINCOLN SQUARE	2	1	0	7	6	1	2	3	7	9	19
WASHINGTON PARK	1	0	0	2	3	1	1	1	2	5	8
HYDE PARK	0	0	0	9	6	4	1	0	9	11	20
WOODLAWN	3	1	0	9	11	0	1	4	9	12	25
ROGERS PARK	1	1	1	16	6	2	0	2	17	8	27
JEFFERSON PARK	0	0	0	4	2	0	1	0	4	3	7
FOREST GLEN	0	1	0	7	0	0	0	1	7	0	8

NORTH PARK	1	1	0	6	2	0	0	2	6	2	10
ALBANY PARK	0	1	0	6	4	0	0	1	6	4	11
PORTAGE PARK	3	3	0	7	0	1	0	6	7	1	14
IRVING PARK	1	1	1	7	3	0	1	2	8	4	14
DUNNING	1	1	0	3	1	0	0	2	3	1	6
MONTCLARE	0	1	0	2	0	0	0	1	2	0	3
BELMONT CRAGIN	3	1	0	4	0	1	0	4	4	1	9
WEST RIDGE	4	2	0	10	4	1	2	6	10	7	23
HERMOSA	1	0	0	3	0	0	1	1	3	1	5
AVONDALE	2	0	0	8	1	0	1	2	8	2	12
LOGAN SQUARE	2	1	0	14	12	0	0	3	14	12	29
HUMBOLDT PARK	5	3	0	14	7	0	1	8	14	8	30
WEST TOWN	12	2	0	14	19	5	4	14	14	28	56
AUSTIN	9	3	0	16	10	0	1	12	16	11	39
WEST GARFIELD PARK	0	1	0	4	5	0	0	1	4	5	10
EAST GARFIELD PARK	4	0	0	10	14	0	0	4	10	14	28

NEAR WEST SIDE	8	2	3	16	6	4	1	10	19	11	40
NORTH LAWNDALE	3	1	0	13	17	0	1	4	13	18	35
UPTOWN	11	2	0	9	5	0	4	13	9	9	31
SOUTH LAWNDALE	3	2	0	7	11	0	0	5	7	11	23
LOWER WEST SIDE	9	1	0	8	7	1	1	10	8	9	27
NEAR SOUTH SIDE	2	0	2	6	2	6	0	2	8	8	18
ARMOUR SQUARE	4	1	1	4	0	2	0	5	5	2	12
NORWOOD PARK	2	2	0	6	0	1	0	4	6	1	11
NEAR NORTH SIDE	0	2	1	8	3	7	6	2	9	16	27
LOOP	9	1	0	4	0	9	6	10	4	15	29
SOUTH SHORE	2	1	0	9	2	1	1	3	9	4	16
CHATHAM	3	1	0	4	2	0	0	4	4	2	10
AVALON PARK	0	1	0	2	0	0	0	1	2	0	3
SOUTH CHICAGO	6	1	0	4	7	0	0	7	4	7	18
BURNSIDE	0	0	0	2	0	0	0	0	2	0	2

CALUMET HEIGHTS	0	0	0	2	0	1	0	0	2	1	3
ROSELAND	3	1	0	4	6	0	0	4	4	6	14
NORTH CENTER	1	0	0	6	2	0	0	1	6	2	9
PULLMAN	1	0	0	2	5	1	0	1	2	6	9
SOUTH DEERING	0	1	0	7	0	0	0	1	7	0	8
EAST SIDE	1	1	0	5	0	0	1	2	5	1	8
WEST PULLMAN	2	1	0	5	2	0	1	3	5	3	11
RIVERDALE	0	1	0	2	1	0	0	1	2	1	4
HEGEWISCH	0	1	0	2	0	0	0	1	2	0	3
GARFIELD RIDGE	1	1	0	5	2	0	0	2	5	2	9
ARCHER HEIGHTS	1	1	0	4	0	0	0	2	4	0	6
BRIGHTON PARK	1	1	0	2	0	0	0	2	2	0	4
MCKINLEY PARK	0	1	0	4	1	0	0	1	4	1	6
LAKE VIEW	4	2	1	16	3	1	1	6	17	5	28
BRIDGEPORT	1	1	0	10	1	1	0	2	10	2	14

NEW CITY	2	3	0	10	4	0	0	5	10	4	19
WEST ELSDON	0	0	0	2	0	0	0	0	2	0	2
GAGE PARK	1	1	0	3	1	0	0	2	3	1	6
CLEARING	1	1	0	4	0	0	0	2	4	0	6
WEST LAWN	2	1	0	3	0	1	0	3	3	1	7
CHICAGO LAWN	5	1	0	3	2	0	1	6	3	3	12
WEST ENGLEWOOD	0	1	0	6	4	0	0	1	6	4	11
ENGLEWOOD	7	1	0	10	10	0	0	8	10	10	28
GREATER GRAND CROSSING	4	1	0	8	2	0	1	5	8	3	16
LINCOLN PARK	1	1	3	13	2	4	1	2	16	7	25
ASHBURN	1	2	0	7	0	0	0	3	7	0	10
AUBURN GRESHAM	6	2	0	7	5	0	0	8	7	5	20
BEVERLY	0	1	0	7	0	0	1	1	7	1	9
WASHINGTON HEIGHTS	2	1	0	6	4	0	0	3	6	4	13
MOUNT GREENWOOD	0	1	0	2	1	0	0	1	2	1	4

MORGAN PARK	0	1	0	6	1	0	1	1	6	2	9
EDGEWATER	2	1	0	10	5	3	3	3	10	11	24
EDISON PARK	0	0	0	4	0	0	0	0	4	0	4
CHICAGO (TOTAL):	**180**	**80**	**13**	**498**	**248**	**59**	**50**	**260**	**511**	**357**	**1128**

Table 2. Lifelong learning facilities per person. This table is organized from least to most number of facilities in the neighborhood.

Neighborhood	Population	Total lifelong learning facilities per person
FULLER PARK	2876	0.00069541
BURNSIDE	2916	0.000685871
WEST ELSDON	18109	0.000110442
MONTCLARE	13426	0.000223447
AVALON PARK	10185	0.000294551
CALUMET HEIGHTS	13812	0.000217202
HEGEWISCH	9426	0.000318269
RIVERDALE	6482	0.000617093
BRIGHTON PARK	45368	8.81679E-05
MOUNT GREENWOOD	19093	0.000209501
EDISON PARK	11187	0.000357558

HERMOSA	25010	0.00019992
DUNNING	41932	0.000143089
ARCHER HEIGHTS	13393	0.000447995
MCKINLEY PARK	15612	0.00038432
GAGE PARK	39894	0.000150399
CLEARING	23139	0.000259302
OAKLAND	5918	0.001182832
JEFFERSON PARK	25448	0.000275071
WEST LAWN	33355	0.000209864
WASHINGTON PARK	11717	0.000682769
FOREST GLEN	18508	0.000432246
SOUTH DEERING	15109	0.000529486
EAST SIDE	23042	0.000347192
BELMONT CRAGIN	78743	0.000114296
NORTH CENTER	31867	0.000282424
PULLMAN	7325	0.001228669
GARFIELD RIDGE	34513	0.000260771
BEVERLY	20034	0.000449236

MORGAN PARK	22544	0.000399219
KENWOOD	17841	0.000560507
NORTH PARK	17931	0.000557693
WEST GARFIELD PARK	18001	0.000555525
CHATHAM	31028	0.00032229
ASHBURN	41081	0.000243422
ALBANY PARK	51542	0.000213418
NORWOOD PARK	37023	0.000297113
WEST PULLMAN	29651	0.000370982
WEST ENGLEWOOD	35505	0.000309816
AVONDALE	39262	0.000305639
ARMOUR SQUARE	13391	0.000896124
CHICAGO LAWN	55628	0.000215719
WASHINGTON HEIGHTS	26493	0.000490696
DOUGLAS	18238	0.000767628
PORTAGE PARK	64124	0.000218327
IRVING PARK	53359	0.000262374
ROSELAND	44619	0.000313768

BRIDGEPORT	31977	0.000437815
SOUTH SHORE	49767	0.000321498
GREATER GRAND CROSSING	32602	0.000490767
NEAR SOUTH SIDE	21390	0.000841515
SOUTH CHICAGO	31198	0.00057696
GRAND BOULEVARD	21929	0.000866433
LINCOLN SQUARE	39493	0.000481098
NEW CITY	44377	0.00042815
HYDE PARK	25681	0.000778786
AUBURN GRESHAM	48743	0.000410315
WEST RIDGE	71942	0.000319702
SOUTH LAWNDALE	79288	0.000290082
EDGEWATER	56521	0.000424621
WOODLAWN	25983	0.000962168
LINCOLN PARK	64116	0.000389918
ROGERS PARK	54991	0.000490989
LOWER WEST SIDE	35769	0.000754844
NEAR NORTH SIDE	80484	0.00033547

EAST GARFIELD PARK	20567	0.001361404
LAKE VIEW	94368	0.000296711
ENGLEWOOD	30654	0.000913421
LOGAN SQUARE	73595	0.000394049
LOOP	29283	0.000990336
HUMBOLDT PARK	56323	0.000532642
UPTOWN	56362	0.000550016
NORTH LAWNDALE	35912	0.000974605
AUSTIN	98514	0.000395883
NEAR WEST SIDE	54881	0.00072885
WEST TOWN	81432	0.00068769
CHICAGO (TOTAL):	**2695598**	**0.036124386**

<u>Appendix C</u>

Collected data from yelp.com: Sports stadiums (Table 3), Cultural centers (Table 4), and museums (Table 5). All other data is directly accessible from the Chicago Data Portal or cuamp.org and will not be duplicated here.

Table 3. Sports stadiums of professional teams in Chicago, IL.

ID	Name	Address	City	State	Zip	Category	Type
1	Guaranteed Rate Field	333 W 35th St	Chicago	IL	60616	Sports	Stadium
2	Wrigley Field	1060 W Addison St	Chicago	IL	60613	Sports	Stadium

3	United Center	1901 W Madison	Chicago	IL	60612	Sports	Stadium
4	Soldier Field	1410 S Museum Campus Dr	Chicago	IL	60605	Sports	Stadium
5	Curtis Granderson Stadium	901 W Roosevelt Rd	Chicago	IL	60608	Sports	Stadium
6	Mcgrath - Phillips Arena	2323 N Sheffield Av	Chicago	IL	60614	Sports	Stadium
7	Wintrust Arena	200 E Cermak Rd	Chicago	IL	60616	Sports	Stadium
8	UIC Pavilion	525 S Racine Ave	Chicago	IL	60607	Sports	Stadium
9	Joseph J. Gentile Arena	6525 N Sheridan Rd	Chicago	IL	60626	Sports	Stadium
10	Cacciatore Stadium/Wish Field	900 W Belden Ave	Chicago	IL	60614	Sports	Stadium
11	Chicago Red Stars	710 W Belden Ave	Chicago	IL	60614	Sports	Stadium
12	Chicago Golden Gloves	3633 N California	Chicago	IL	60618	Sports	Stadium
13	AVP professional volleyball tournament	1001 North Lake Shore Dr	Chicago	IL	60611	Sports	Stadium

Table 4. Cultural centers in Chicago, IL.

ID	Name	Address	City	State	Zip	Category	Type
4	Africaribe Cultural Center	2547 W Division St	Chicago	IL	60622	Culture	Cultural Center
27	Aloha Center Chicago	1626 W Lawrence Ave	Chicago	IL	60640	Culture	Cultural Center
19	Arts Incubator	301 E Garfield Blvd	Chicago	IL	60637	Culture	Cultural Center
38	Austin Town Hall Cultural Center	5610 W. Lake St.	Chicago	IL	NA	Culture	Cultural Center
45	Berger North Mansion Lakeside	6205 N. Sheridan Rd.	Chicago	IL	NA	Culture	Cultural Center
26	Bernadin Center For Catholicism and American Culture	5401 S Cornell Ave	Chicago	IL	60615	Culture	Cultural Center
35	Beverly Arts Center of Chicago	2407 W 111th St	Chicago	IL	60655	Culture	Cultural Center
14	Black Cinema House	7200 South Kimbark Ave	Chicago	IL	60619	Culture	Cultural Center
36	Black Ensemble Theater	4450 N Clark St	Chicago	IL	60640	Culture	Cultural Center

	CulturalCenter						
39	Calumet Cultural Center	9801 S. Avenue G	Chicago	IL	NA	Culture	Cultural Center
33	Center for Asian Arts and Media	600 S Michigan Ave	Chicago	IL	60605	Culture	Cultural Center
30	Chicago Shakespeare in the Parks	800 E Grand Ave	Chicago	IL	60611	Culture	Cultural Center
1	Chicago Cultural Center	78 E Washington St	Chicago	IL	60602	Culture	Cultural Center
15	Croatian Cultural Center of Chicago	2845 W Devon Ave	Chicago	IL	60659	Culture	Cultural Center
16	DANK Haus German AmericanCultural Center	4740 N Western Ave	Chicago	IL	60625	Culture	Cultural Center
46	Douglas Park Cultural Center	1401 S. Sacramento Dr.	Chicago	IL	NA	Culture	Cultural Center
23	Elms Cultural Center	310 S Peoria St	Chicago	IL	60607	Culture	Cultural Center
24	Goethe-Institut Chicago	150 N Michigan Ave	Chicago	IL	60601	Culture	Cultural Center
34	Hairpin Arts Center	2810 N Milwaukee Ave	Chicago	IL	60618	Culture	Cultural Center
40	Hamilton Park Cultural Center	513 W. 72nd St.	Chicago	IL	NA	Culture	Cultural Center
10	Harold Washington CulturalCenter	4701 S King Dr	Chicago	IL	60615	Culture	Cultural Center
47	Humboldt Park Cultural Center	1400 N. Sacramento Ave.	Chicago	IL	NA	Culture	Cultural Center
41	Indian Boundary Park Cultural Center	2500 W. Lunt Ave.	Chicago	IL	NA	Culture	Cultural Center
22	Instituto Cervantes	31 W Ohio St	Chicago	IL	60654	Culture	Cultural Center
7	International Latino Cultural Center	676 N LaSalle St	Chicago	IL	60654	Culture	Cultural Center
37	International Music Foundation	11 E Adams St	Chicago	IL	60603	Culture	Cultural Center
8	Irish American Heritage Center	4626 N Knox Ave	Chicago	IL	60630	Culture	Cultural Center
18	Japanese American Service Committee	4427 N Clark St	Chicago	IL	60640	Culture	Cultural Center
3	Japanese Culture Center	1016 W Belmont Ave	Chicago	IL	60657	Culture	Cultural Center
2	Lincoln Park Cultural Center	2045 N Lincoln Park W	Chicago	IL	60614	Culture	Cultural Center
32	Lincoln Square Arts Center	4754 N Leavitt St	Chicago	IL	60625	Culture	Cultural Center
42	Marquette Cultural Center	6743 S. Kedzie	Chicago	IL	NA	Culture	Cultural Center
20	Nommo Gathering Black Writers Collective	3831 S Michigan Ave	Chicago	IL	60653	Culture	Cultural Center
31	North Lakeside Cultural Center	6219 N Sheridan Rd	Chicago	IL	60660	Culture	Cultural Center
28	Olin Studio	1957 W 23rd St	Chicago	IL	60608	Culture	Cultural Center

48	Palmer Cultural Center	201 E. 111th	Chicago	IL	NA	Culture	Cultural Center
43	Piotrowski Park Cultural Center	4247 W. 31st	Chicago	IL	NA	Culture	Cultural Center
5	Puerto Rican Cultural Center	2739 W Division St	Chicago	IL	60622	Culture	Cultural Center
17	Reva and David Logan Center For the Arts	915 E 60th St	Chicago	IL	60637	Culture	Cultural Center
49	Ridge Cultural Center	1817 W. 96th St.	Chicago	IL	NA	Culture	Cultural Center
11	Segundo Ruiz Belvis CulturalCenter	4048 W Armitage Ave	Chicago	IL	60639	Culture	Cultural Center
29	Sentieri Italiani	5430 N Broadway	Chicago	IL	60640	Culture	Cultural Center
6	Shivalya Hindu Cultural Center	318 W Grand Ave	Chicago	IL	60654	Culture	Cultural Center
12	South Shore Cultural Center	7059 S South Shore Dr	Chicago	IL	60649	Culture	Cultural Center
13	The Copernicus Center	5216 W Lawrence Ave	Chicago	IL	60630	Culture	Cultural Center
50	Tuley Cultural Center	501 E. 90th Pl.	Chicago	IL	NA	Culture	Cultural Center
25	Ukrainian Cultural Center	2247 W Chicago Ave	Chicago	IL	60622	Culture	Cultural Center
9	Universidad Nacional Autonoma de Mexico	350 W Erie St	Chicago	IL	60654	Culture	Cultural Center
21	Uptown Multi Cultural Art Center	1630 W Wilson Ave	Chicago	IL	60640	Culture	Cultural Center
44	West Pullman Cultural Centers	401 W. 123rd St.	Chicago	IL	NA	Culture	Cultural Center

Table 5. Museums in Chicago, IL.

ID	Name	Address	City	State	ZIP	Category	Type
14	Adler Planetarium	1300 S Lake Shore Dr	Chicago	IL	60605	Culture	Museum
15	American Writers Museum	180 N Michigan Ave	Chicago	IL	60601	Culture	Museum
1	Art Institute of Chicago	111 S Michigan Ave	Chicago	IL	60603	Culture	Museum
48	Balzekas Museum of Lithuanian Culture	6500 S Pulaski Rd	Chicago	IL	60629	Culture	Museum
56	Bronzeville Children's Museum	9301 S Stony Island Ave	Chicago	IL	60617	Culture	Museum
52	Brunk Children's Museum of Immigration	5211 N Clark St	Chicago	IL	60640	Culture	Museum
19	Chicago Architecture Foundation	224 S Michigan Ave	Chicago	IL	60604	Culture	Museum
28	Chicago Children's Museum	700 E Grand Ave	Chicago	IL	60611	Culture	Museum

11	Chicago Design Museum	108 N State St	Chicago	IL	60602	Culture	Museum
54	Chicago Historical Society	1601 N Clark St	Chicago	IL	60614	Culture	Museum
7	Chicago History Museum	1601 N Clark St	Chicago	IL	60614	Culture	Museum
34	Chicago Maritime Museum	1200 W 35th St	Chicago	IL	60609	Culture	Museum
33	Chicago Sports Museum	835 N Michigan Ave	Chicago	IL	60611	Culture	Museum
31	Chinese-American Museum of Chicago	238 W 23rd St	Chicago	IL	60616	Culture	Museum
47	Clarke House Museum	1827 S Indiana Ave	Chicago	IL	60616	Culture	Museum
23	DePaul Art Museum	935 W Fullerton Ave	Chicago	IL	60614	Culture	Museum
42	Dr. Sun Yat-Sen Museum of Chicago	2245 S Wentworth Ave	Chicago	IL	60616	Culture	Museum
5	Driehaus Museum	40 E Erie St	Chicago	IL	60611	Culture	Museum
17	DuSable Museum Of African American History	740 E 56th Pl	Chicago	IL	60637	Culture	Museum
45	Edgewater Historical Society	5358 N Ashland Ave	Chicago	IL	60640	Culture	Museum
21	Frank Lloyd Wright Trust	209 South LaSalle St	Chicago	IL	60604	Culture	Museum
27	Frederick C Robie House	5757 S Woodlawn Ave	Chicago	IL	60637	Culture	Museum
53	Gerber Hart Library and Archives	6500 N Clark St	Chicago	IL	60626	Culture	Museum
24	Glessner House Museum	1800 S Prairie Ave	Chicago	IL	60616	Culture	Museum
51	Heritage Museum of Asian Art	211 W 23rd St	Chicago	IL	60616	Culture	Museum
44	Historic Pullman Foundation	614 E 113th St	Chicago	IL	60607	Culture	Museum
57	Indo-American Heritage Museum	6328 N California Ave	Chicago	IL	60659	Culture	Museum
13	Intuit: The Center For Intuitive & Outsider Art	756 N Milwaukee Ave	Chicago	IL	60642	Culture	Museum
18	Jane Addams Hull House Museum	800 S Halsted St	Chicago	IL	60607	Culture	Museum
29	Klairmont Kollections	3111 North Knox Ave	Chicago	IL	60641	Culture	Museum
41	Loyola University Museum of Art	820 N Michigan Ave	Chicago	IL	60611	Culture	Museum
20	McCormick Bridgehouse and Chicago River Museum	376 N Michigan Ave	Chicago	IL	60601	Culture	Museum

6	Money Museum	230 S LaSalle St	Chicago	IL	60604	Culture	Museum
37	Museum of Broadcast Communications	360 N State St	Chicago	IL	60654	Culture	Museum
4	Museum of Contemporary Art	220 E Chicago Ave	Chicago	IL	60611	Culture	Museum
16	Museum Of Contemporary Photography	600 S Michigan Ave	Chicago	IL	60605	Culture	Museum
3	Museum of Science and Industry	5700 S Lake Shore Dr	Chicago	IL	60637	Culture	Museum
43	National A Philip Randolph Pullman Porter Museum	10406 S Maryland Ave	Chicago	IL	60628	Culture	Museum
32	National Hellenic Museum	333 S Halsted St	Chicago	IL	60661	Culture	Museum
46	National Italian American Sports Hall Of Fame	1431 W Taylor St	Chicago	IL	60607	Culture	Museum
58	National Jazz Museum	1727 South Indiana Ave	Chicago	IL	60616	Culture	Museum
10	National Museum of Mexican Art	1852 W 19th St	Chicago	IL	60608	Culture	Museum
36	National Veterans Art Museum	4041 N Milwaukee Ave	Chicago	IL	60641	Culture	Museum
59	Noble-Seymour-Crippen House	5622 N Newark Ave	Chicago	IL	60631	Culture	Museum
12	Oriental Institute Museum	1155 E 58th St	Chicago	IL	60637	Culture	Museum
8	Peggy Notebaert Nature Museum	2430 N Cannon Dr	Chicago	IL	60614	Culture	Museum
38	Polish Museum of America	984 N Milwaukee Ave	Chicago	IL	60622	Culture	Museum
49	Pritzker Military Museum & Library	104 South Michigan Ave	Chicago	IL	60603	Culture	Museum
55	Serbian American Museum St. Sava	448 W Barry Ave	Chicago	IL	60657	Culture	Museum
9	Smart Museum of Art	5550 S Greenwood Ave	Chicago	IL	60637	Culture	Museum
50	Stampland	2708 W Chicago Ave	Chicago	IL	60622	Culture	Museum
25	Swedish American Museum	5211 N Clark St	Chicago	IL	60640	Culture	Museum
39	The Arts Club of Chicago	201 E Ontario St	Chicago	IL	60611	Culture	Museum
22	The Capo Museum	4544 N Lincoln Ave	Chicago	IL	60625	Culture	Museum
2	The Field Museum	1400 S Lake Shore Dr	Chicago	IL	60605	Culture	Museum
35	The Floating Museum	7208 S Merrill Ave	Chicago	IL	60649	Culture	Museum
26	The Leather Archives & Museum	6418 N Greenview Ave	Chicago	IL	60626	Culture	Museum

40	Ukrainian Institute of Modern Art	2320 W Chicago Ave	Chicago	IL	60622	Culture	Museum
30	Ukrainian National Museum	2249 W Superior St	Chicago	IL	60612	Culture	Museum