

- Associate Professor, Faculty of Design
- Environmental Design + Inclusive Design Programs
- Architect with 30 years of experiences
- Specialization in accessibility assessments and planning for facilities
- Research is centred on Wayfinding, Wayshowing of public spaces with an inclusive perspective

1.0 Housing Context

 participatory research with Toronto Community Housing 2010-2011

2.0 Hospital Context

- course-based research with Baycrest Hospital, Toronto 2013

3.0 Commercial Public Space Context

faculty masters and current research
 2012-present

What is 'Wayfinding'?

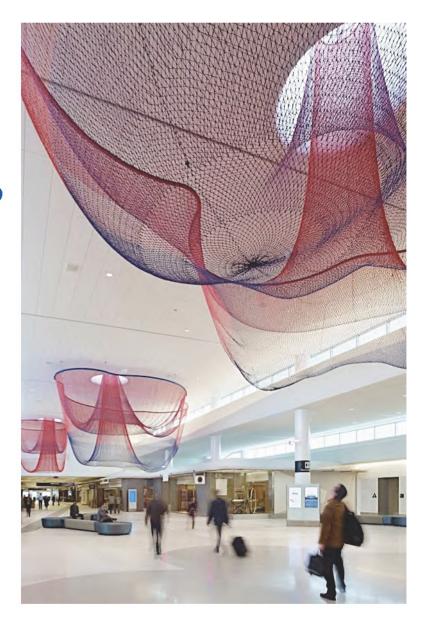


Image: morphous netting sculptures located at ceiling in airport setting to orient travellers

What is 'Wayfinding'?

Movement, orientation and navigation is a primary daily human activity, [and] choices based upon information, for routes and destinations...is part of a journey experience through the built and other environments.

- designworkplan, Netherlands

1.0 Housing Context

- participatory research with Toronto Community Housing 2010-2011

INCLUSIVE WAYFINDING

IN THE SOCIAL HOUSING CONTEXT



Image: cover for 2011 publication of research work with Toronto Community Housing, OCAD U and Orfield Research Lab



Image: launch of partnership between OCADU and Toronto Community Housing with residents, president and mayor in attendance



Image: aerial view of downtown east Toronto

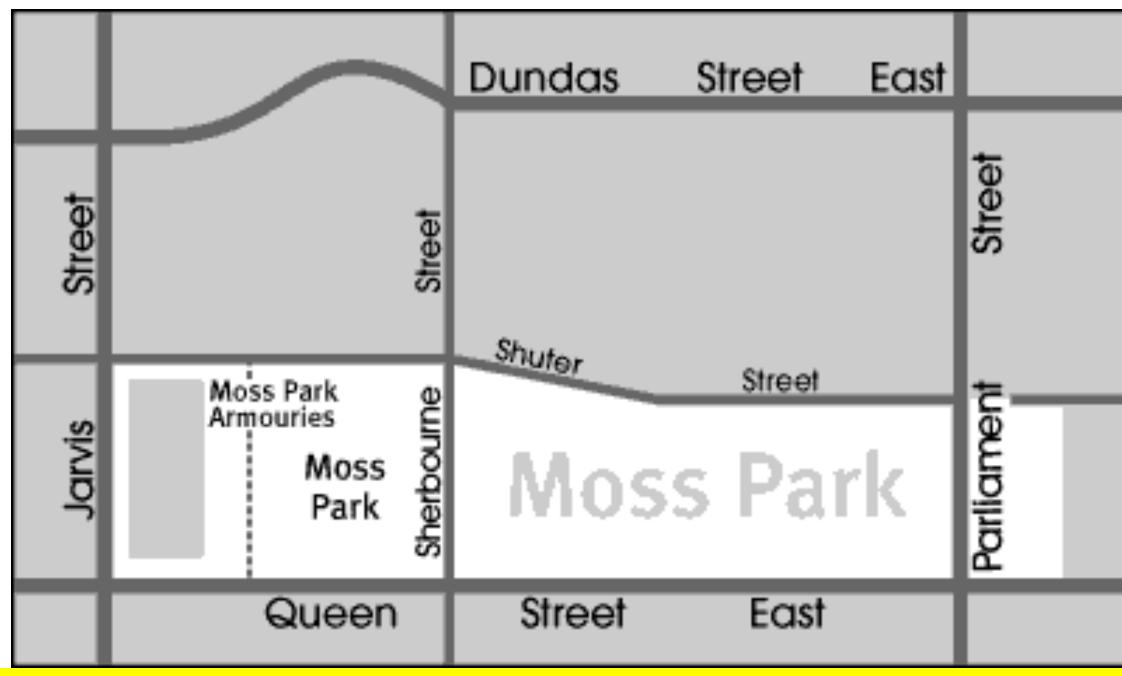


Image: map of toronto east area showing the boundaries of Moss Park Residential Community



Image: students touring Moss Park Housing to learn about and discuss wayfinding issues in 2010

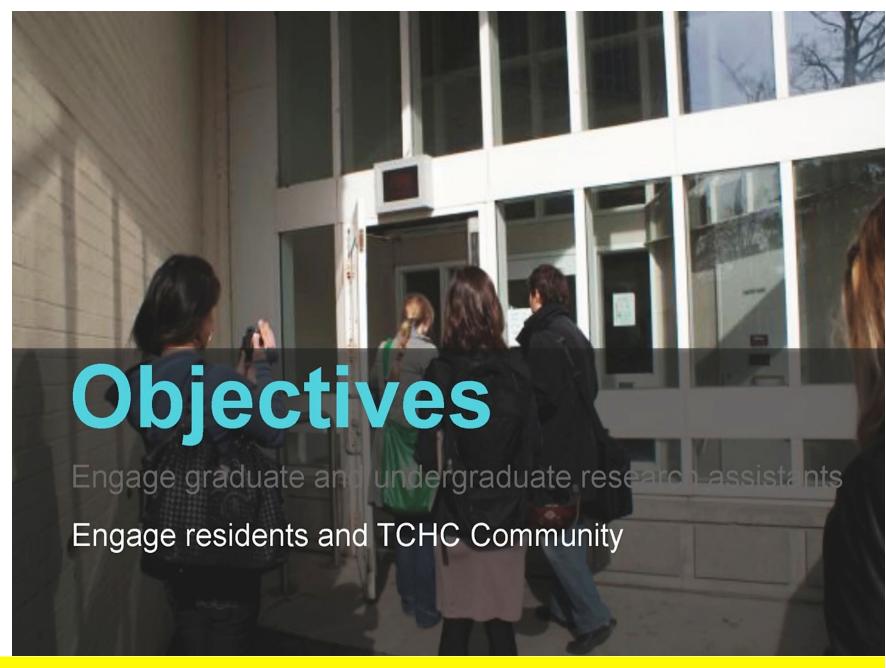


Image: students and residents meeting at Moss Park community centre to discuss wayfinding issues in 2010

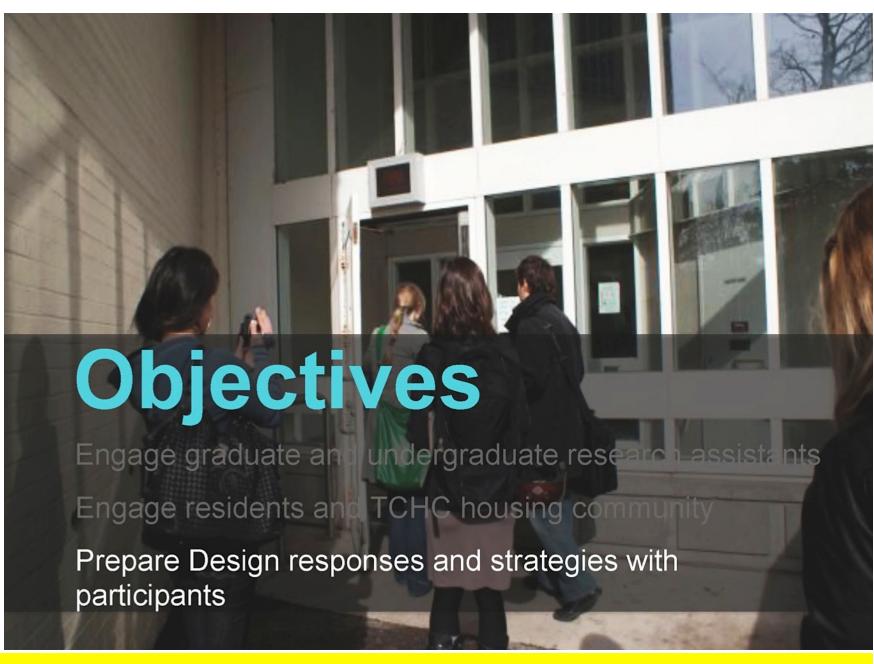


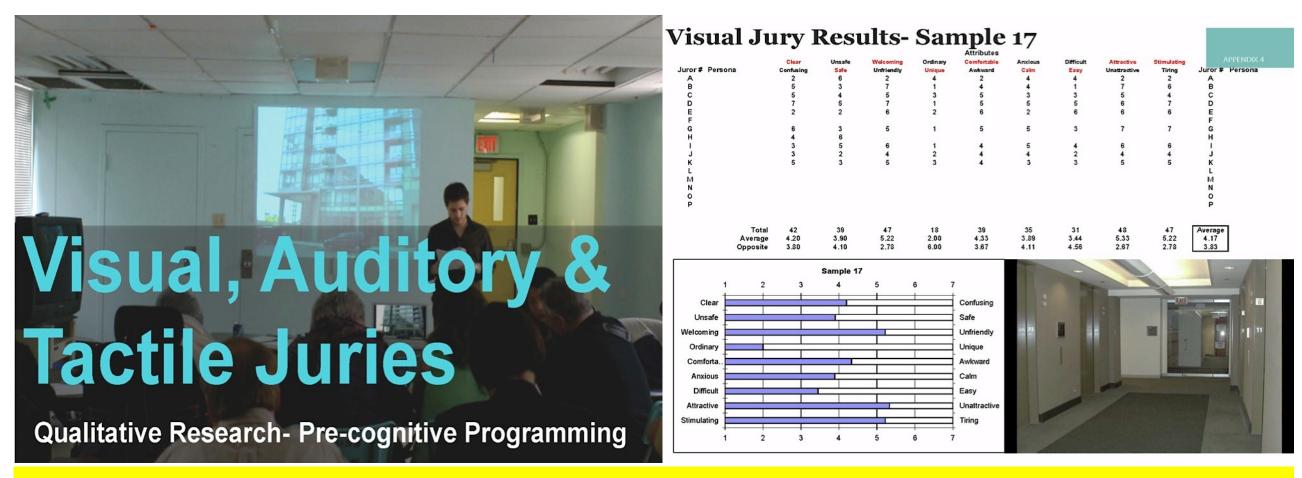
Image: students and residents meeting at Moss Park community centre to discuss wayfinding issues in 2010



Image: students and residents meeting at Moss Park community centre to discuss wayfinding issues in 2010



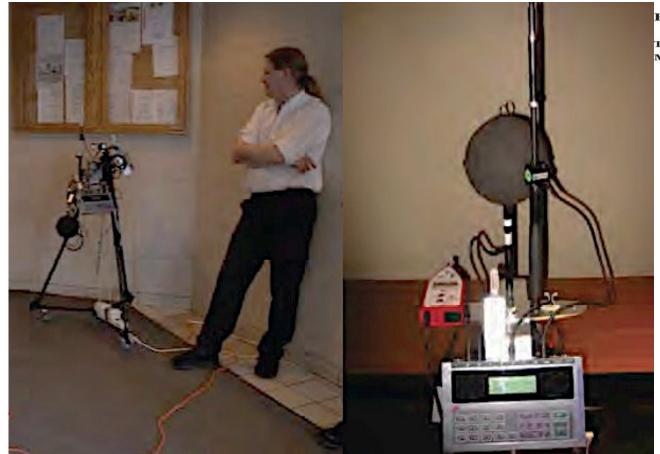
Images: students, residents and TCHC management in 2010 workshops discussing wayfinding issues and navigating public spaces within the Moss Park Toronto housing complex to experience the issues being discussed.



Images:

Left: residents partake in different jurying activities providing reactions to various building settings to help determine perceptual and cognitive preferences for design features that may help with wayfinding.

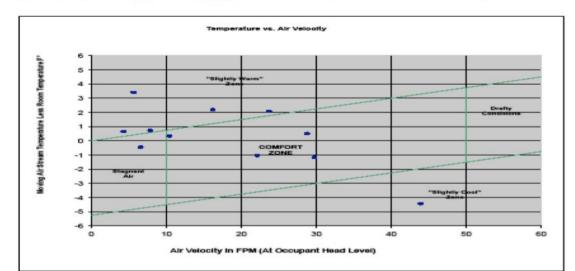
Right: graphic results from one Visual Jury showing how a building image solicited a variety of qualitative responses such as calm, confusing, bright, clear etc.



ENVIRONMENTAL DATA CAPTURE

TEMPERATURE & AIR VELOCITY READINGS FOR MOSS PARK MARCH, 2010

Location	Pile.	Temperature	Air Velocity	Location	Description 275 Shaker St. Moss Rack.
1	MO ME	0.66	4-31	1	Center of rec (bubble) runn on first floor
2	1030	4.34	10.40	2	Inside entrance to ser (bubble) soon on first floor
3	1043	-4-43	43.96	3	Inside front vestibule on first floor
4	1051		16.22	4	Pirst floor corridor reser front vestibule
5	1100	2.08	- T- 7-	s	Pirst floor corridor by elevators (elevator lubby)
6	1115	-1.003		-	Pirst floor consider men rem vestibule
7	1123	3-42	5.62	7	Teside rear vestibule on first floor
8	1140	-0-64	7-87	2	Twelfik floor consider by elevators
9	1154	49-77-2	7.87	9	Twelfile floor consider by incinerator
267	12034	40.54	2.日. 字相	30	Penthouse floor corridor by elevators
11			C. C	11	Penthouse floor to center of rec. room.
12	1228	-1.15	29-77	12	Penthouse floor in Londry room.



Images:

Left: Orfield research shown measuring environmental conditions at Moss Park such as temperature, light levels, sound level and air quality

Right: graphic tables from the research showing overall results for one location in the complex



Image: students interviewing Toronto Community Housing residents on their trip to OCAD U in 2010

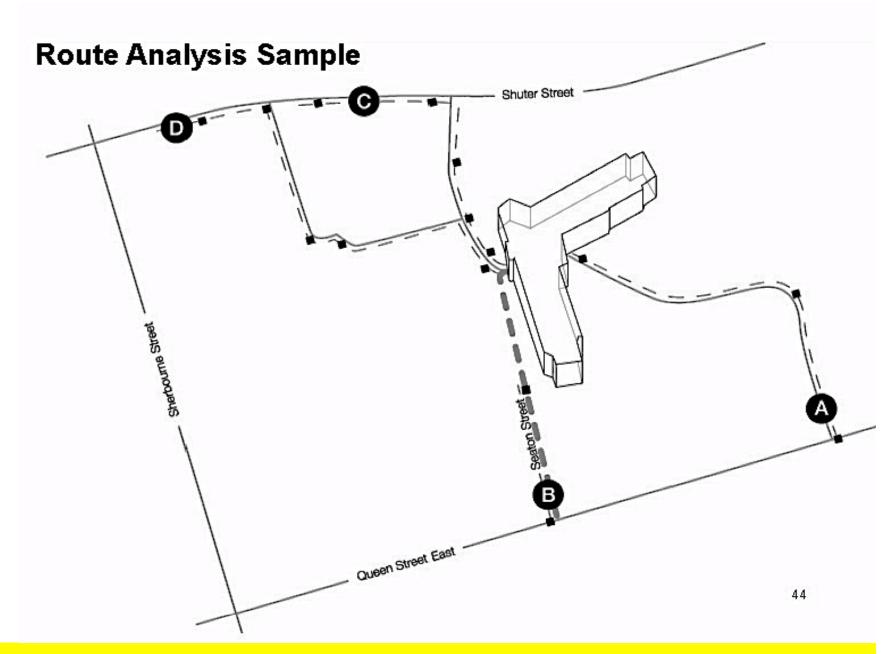


Image: sample of a diagram showing route analysis for a series of pathways throughout the Moss Park housing Complex



Image: student with resident discussing emerging themes for the research work including challenges arising from safety matters within the complex



Image: student with resident discussing emerging themes for research work including challenges arising from poor accessible travel to and from complex and clear navigation of both internal and external spaces



Image: student with resident discussing emerging themes for research work including challenges arising from poor wayshowing signage and support for clear orientation within complex



Image: plan of housing complex with student and resident marking key areas of wayfinding to improve.

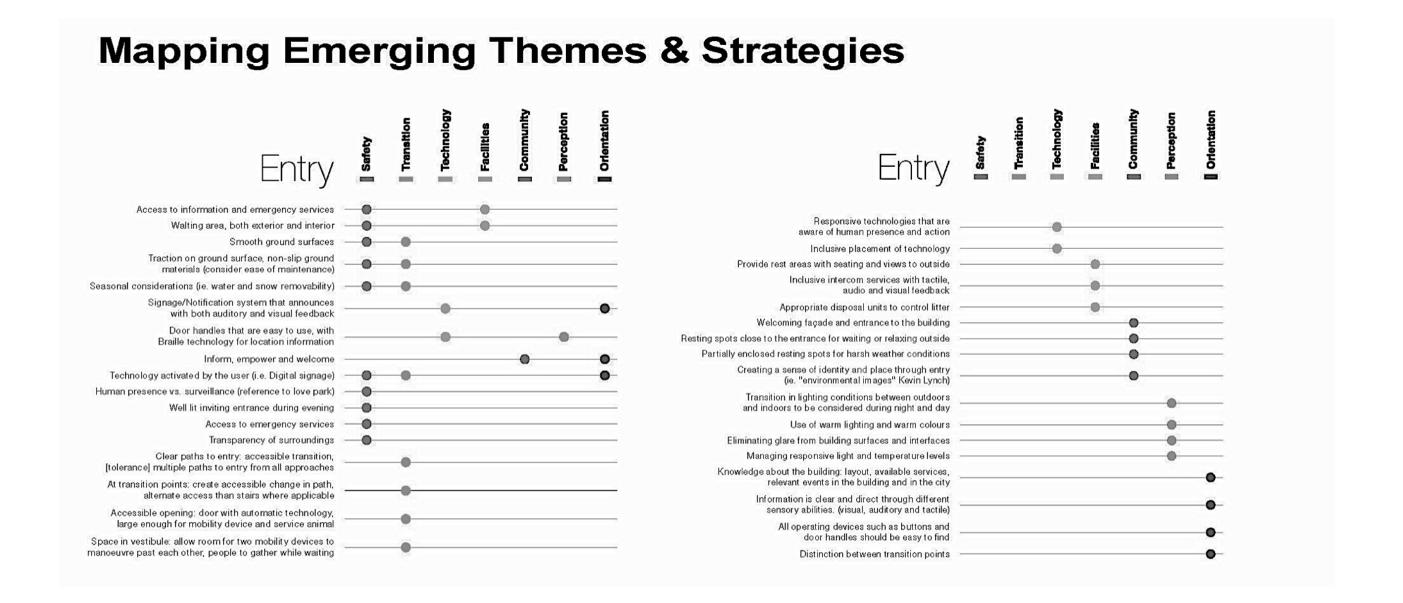


Image: graphic table showing text for various design strategies emerging for an entrance area of the main buildings in the housing complex



Image: start of images showing various design strategies and concepts. This solution shows young people walking through Moss Park in the evening with improved lighting throughout the grounds and exterior buildings









Image: this solution shows concepts for revitalizing transit shelters for accessible travel and orientation within the housing complex



Image: this solution shows an idea for a major scented garden within the housing complex

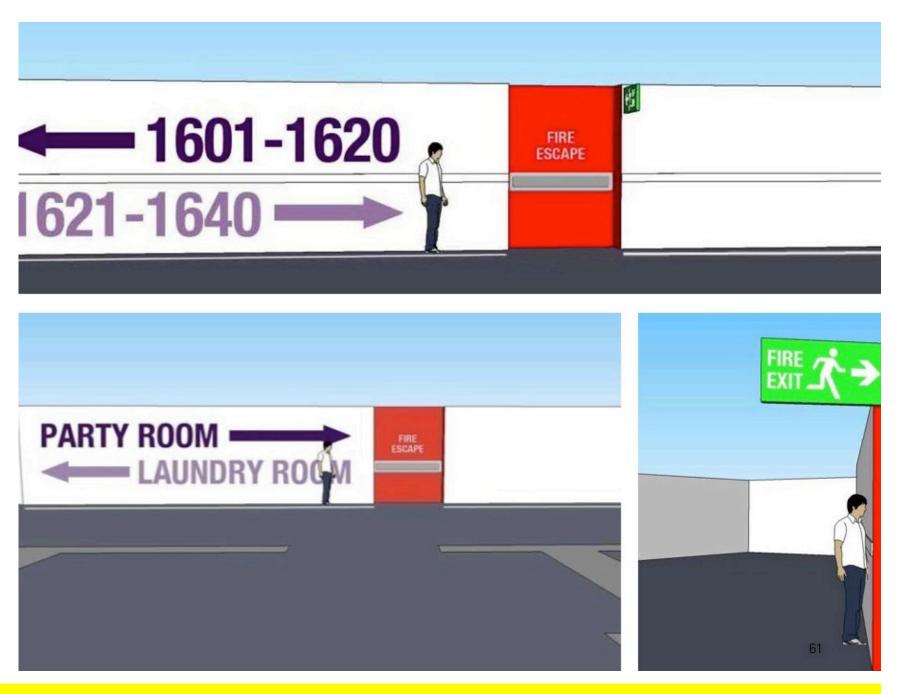


Image: this solution shows large size graphics and signage for the underground parking areas of the complex along with stronger contrast for Exit and Fire Safety paths





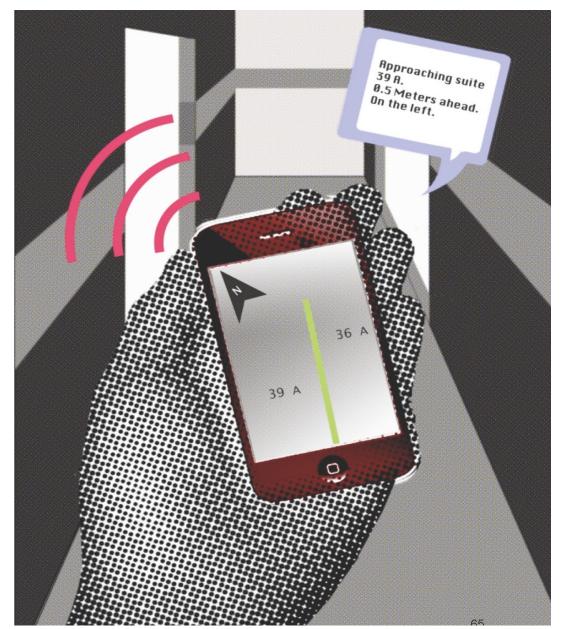


Image: this solution shows an idea for using talking and mapping phone apps to support navigation, wayfinding and communication within the housing complex



Image: poster presentation by researchers who presented their work at an international conference on access and inclusion, Toronto, 2011

2.0 Hospital Context

- course-based research with Baycrest Hospital, Toronto 2013





Think Tank 1: Awareness

Wayfinding in the Baycrest Context





Image: cover for 2013 publication of student course-based research work with Baycrest Hospital, Toronto and showing various design strategies and solutions for wayfinding issues

Inclusive Wayfinding

In the Hospital Context: Think Tank 1 Project

Baycrest Health Sciences Centre for Aging







Key **Issues:**

in the areas of signage, maps and havigation, elevators, entrances and exits, technology and landmarks.

Signage











Visual Clutter

When it comes to signage, there is sensory overload. Some issues with the signage are the shapes, colour and amount of information on the signs. The shape of the sign, being fairly complex as opposed to a simple shape, adds unnecessary visual information. - Group 1

Visual clutter is consistent throughout the entire main floor. Every space is occupied with signs, artwork, sculptures and advertisements. The artwork is not curated; it's almost placed at random. This causes confusion for visitors because it distracts them from the signs, which are already difficult to navigate with. - Group 4

The touchscreens are a very powerful tool, and are one of the best wayfinding tools that Baycrest has. However, the touchscreens are not being used properly. Three quarters of the screen is dedicated to advertisements and event notifications that continuously change every minute. That leaves just a quarter of the space for Baycrest's map. - Group 4

Maps & Navigation

Maps & Navigation









Directional Confusion

Both staff members and the many people who come to visit Baycrest have difficult distinguishing the Apotex from the Hospital. Another large issue for Baycrest visitors is locating the Terrace. Many people do not know that the Terrace is not inside Baycrest, but across the parking lot, which creates confusion and frustration and may cause visitors to be late for certain events that they may be attending. – Group 1

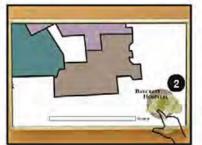
Most maps don't indicate where you currently are, while some do. Most maps serve more as a layout of the building rather than a wayfinding tool. - Group 5

Not only do visitors of Baycrest, but also Baycrest's own staff members have difficulty with navigation. Specifically, navigating the basement compartments is a difficult task. They look very similar and it is hard to distinguish North, East, South and West when you are underground, as there are few if any, points of reference to guide you. – Group 1

Design Solutions

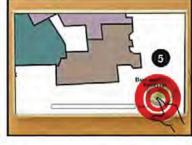
disposal. Designing a new wayfinding interface for the touch screen can make the entire wayfinding experience more enjoyable. The home screen for Baycrest's touchscreen would have the following options and functions:









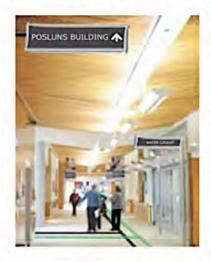




- The three icons represent the centre's zones that we've previously proposed.
- When touched, a detailed map of that specific zone will pop-up.
- The map button will bring the user to an overall map of the centre. From here the user will be able to pinch to zoom and look for their destination.
- The "Search" button allows users to type in the name of the zone or facility they were looking for. As the user types the search bar will reveal its results colour coded by zones.
- 6 Haptic response system, causes the monitor to vibrate when a button on the touchscreen is tapped to reduce input errors.
- 6 Auditory responses built into "Help" guide users through the user interface.
- 7 Help button will contact the information desk for assistance. Info desk can control touch screen to show the person's route.
- 8 Separate input screen, stylus and auditory interaction will allow people who cannot reach or extend their arms to interact with screen.

Design Solutions

nating entrances and exits to their appropriate zoning colour, and providing contrast for the visually challenged, the new signage system would also compliment the glass entrances and provide safety markers for users.





Technology Strategies and Solutions:

Interactive touch-screen maps allows the user to navigate their own way around. Users would be able to input their destination by touching and following instructions on the screenuseful if no physical staff member is available to help. The system could map out the route to the destination using colours, arrows and both written and spoken information in any language.





Design Solutions

formation prior to their visit to the centre. The application would give the user a sense of the layout of the hospital, and they will know what to expect and where to go upon arriving.







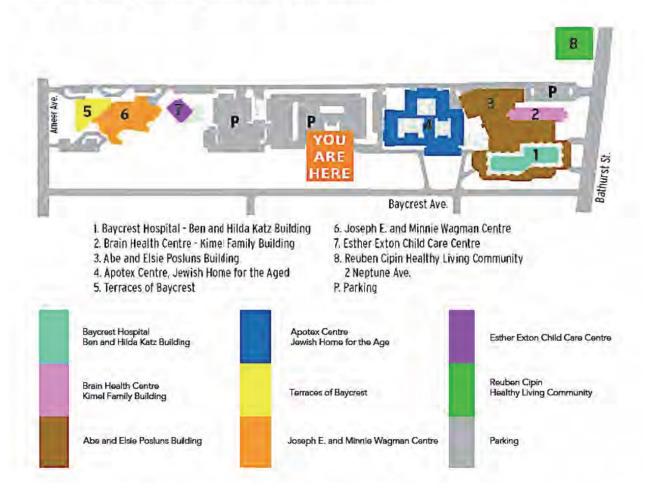
Help Intercom at Baycrest:

This system provides assistance for users when in need at the touch of a button. The help intercom should be connected directly to an employee at Baycrest who can provide immediate response whether it is an emergency or a simple question. This system should be placed throughout Baycrest and be clearly labeled to describe their function.





2D Mapping Strategies and Solutions:







3.0 Commercial Public Space Context

- faculty masters and current research 2012-present



Image: graduate students celebrating their big day



Inclusive Wayfinding

Matter of Access:

Evolving Material Practices for Inclusive Wayfinding

Image: woman in wheelchairs with travel bag navigating an airport

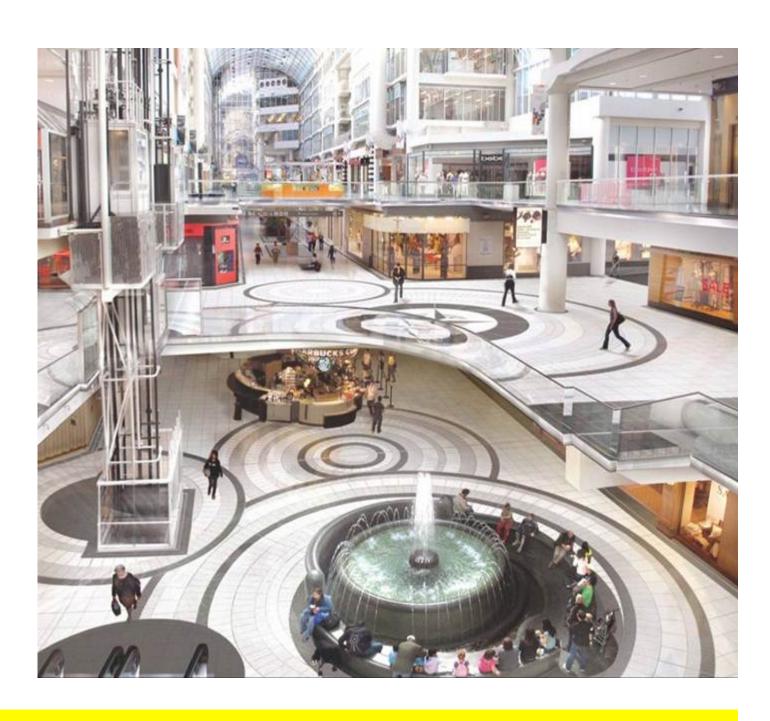


Image: general area of Eaton Centre, Toronto





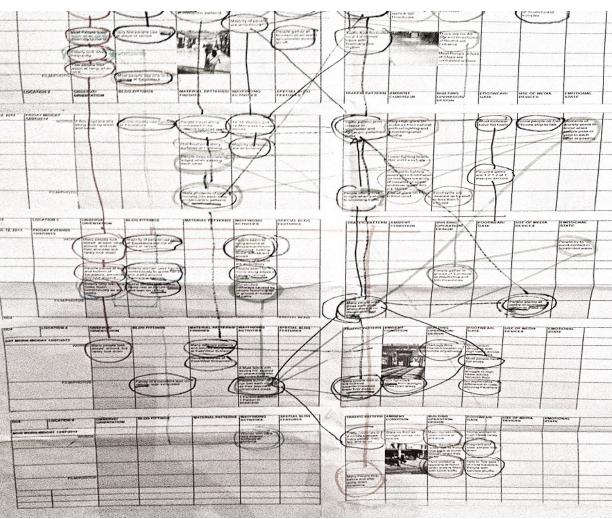


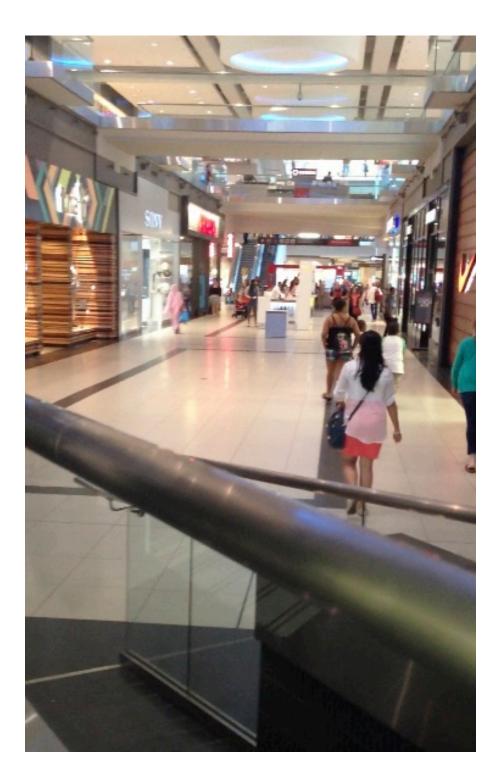
Image: various images of people navigating Eaton Centre, Toronto

Constructing Grounded Theory A Practical Golde Through Qualitative Analysis Kathy Charmaz	Grounded Theory The Philosophy, Method, and Work of BARNEY GLASER edited by Vivian B. Martin & Astrid Gynnild
Charleston (Market Control of Con	

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District the second		People keep to material edges when passing each other	n		yielding to oncoming traffic	A lot of glars on floors in food cou	in Food spits are cleaned up by ear	Minimal Company
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any people look ahead, at each	Majority of people use railing at Escalators but not at stairs or ramps		People seem to move along edges of					
ther, around, and over their			balcony rumo					
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			Propic keep to partiers edges when passing each other. Where incidents of people running into each other o ennouncie patterns.				Lower lighting levels 100- 200 Lx in Cafe Contrast in light levels at the End Rotal / mid level was end and apper or lower levels		People's gates are at 1 stap per veces	1012 d													
308. 13, 2013 3008.NENG	Many people look ahead, at each other, around, ever their shealder but earnly look down	Majority of people one ruiling at Escalators but not at states or rumps	Variety of Surfaces, carpet, terrator, quarter tile, and stained sek filtering	People hang around at Mazzanine/Atrium halconies, looking down, across and about	Woman uses ledge seating but needs to perch, can't reach seat	Many people orion errors each other where there is no discernable floor pattern	Glars, shadows are stark at entrances and in open atrium	People gather in groups of 3+ at Directories	Majority of People ambalancy	Person stan concentric p	h at People try to avoid or in constraint areas	etar .		,			, ,	,		, ,			
LOCATION 3	Propie passe at top / bottom of oculators, slevators, look around	Elderly woman uses handrail around measurance baleury		People seem to move also adjos of bulcotty railings, guards						NATURALISTIC OBSERVATION	MOVEMENTS RELATED TO NO COLOUR LOCATIONS	TO MOVEMENT PATTERNS &	AMBIENT CONDITION	BUILDING FITTINGS RALINGS, EDGES	PEOPLES ACTIONS	FOOTWEAR/ GATE / AMBULATION	ACTIVITIES RELATED TO SPECIAL BLOG FEATURES	BLDG OPERATION/ DESIGN OR PLANNING	WAYFINDING DEVICES, DRECTORIES, LANDMARKS, CUES	ASSIST, DEVICES! CHALLENGES	USC OF MEDIA DEVICES	EMOTION: STATE	
	Eldurly lady with limp looks down continuously as the walks	people with heavy items reed at Advisor Balcony, and lean on railing		Constricted pathways exceed by people bunchis up in groups in middle of paths						THEME 1	Impact of Material patte	rns, geometry, colour o	contrast on pedestrian m	novement									
JUL 15, 200 SIORNING	Many people look ahead, around, but rarely look down	Family of 4 travellers less on rollings, look exhausts	Many different patterns of and colours along floor at East West Entrance	People bands up, run into each other near esentricited areas	Nesting is limited and sportefally located	Many people walk in line or some towards one-raded linear floor pattern	Major light thek patterns from sunlight at open areas	Garboge Ries, Planters Incated in middle of paths	No approxishing Gate among	THEME 2	Space congifuration, si bunching/squeezing up	ze, proximity to buildin , sudden shifts in trave	g elements such as esc il direction or disruption	alators, elevators have in gate.	a pronounced impac	t on peoples moven	ent, traffic patterns	including cause of po	odestrian confusion, fru	stration, including		7	
LOCATION 4			Several material finishes at East West Entrances	1 Person with walker 1 Person in wheelshair					One person st high books at a	THEME 3	Glare is a major issue for wayfinding, particularly in creating shadows and light on patterned, glossy, smooth, and colourful materials												
				2 Male toom with severe BK perhed in wheelchair into Victoria's Socret					Most people is observ	THEME 4	People rely on railings at moving transportation such as escalators, but people are cautious of using railings at stairs, ramps exception for elderly, pregnant woman and children												
JUL 15, 2013 EVENING					People least over at Soustain, Bad Postare	Yruffic continues in 1-2 minute intervals, many	Glary on floor as sunlight comes into spaces	Major construction abstructions at outrance	Young woman Horis rurely is	THEME 5	A migrofty of people visited the mall with flat or low-healed shoes. People with flat shoes were seen to go up and down stairs with success and rarely using the handraits Some women with high heals struggled on both tied and capated surfaces and many relied on handraits to go down stairs or ramps.												
LOCATIONS						people, then fee. Many People stop before and after going down		Security take notes, talk to Police, look at wasten as	Woman with a exterior sprin	THEME 6	Many people rely on building elements such as seating, railings, ledges and special features including fountain structures, to sit, rest, and lean against as part of pedestrian activities. In particular, it appears that the elderly, and families												
	 					Meet to Toe gate. People with randals shuffly		Floor polishing at Name	Program and	THEME 7	Building Elements such as garbage bins, directories, planters pose wayfinding issues, particularly when they are positioned in constricted areas of facilities and pathways. A second aspect of this theme is that building operations such as cleaning, polahing and maintenance of materials somewhall interrupts daily activities of users and podestrians through obstruction of pathways or notes of equipment in use.												
	Н									THEME 8	Activities around Way finding directors include seaking the directory in the first instance, meandering around directories in groups and individually, leaning against directories. Directory location is important for way finding for a												
									Ī	THEME 9	Other themstic outcomes includes a possible link between the surfaces used in support of case users, wheelichar and other AT users. Case users rely on horizontal and vertical surfaces for feedback with their assistive devices, including manual and digital devices. Materials have importance for wheelchair users with respect to friction of the surface travelled. There is a tendency for wheelchair to operate more smoothly along amount horizontal surfaces including ceramic-traverse, stems and composite life,												
									Ī	TIER 1 OPEN (ODES	V2/10/12/28		75 St. 11 St. 12 St. 12	The Contract of	allen en et e 60	y are a special or			100 TENERO			
										1	People travel along contrasted linear patterns but orise cross concentric patterns	Constricted pathways caused by people to bunch up in the middle of paths	When sun comes into complex, major glars on flooring, waits & Directories	Most people use both railings at Escalators	People rarely look down to floor but Diderly seem to look down frequently	People's gates are 1-0-1- at 1 step per second	People gathering at fountain have poor posture	Garbage Bline located in middle of pathways	People meander seeking info at directory.	1 Person with valuer 1 Person in wheelchair	people use cell phones in open areas at North End	COMMENTS RELOCATED	
									Ī	2	Many people walk in line or move lowards contrasted lines floor pattern	People bunch up, run into each other near constricted areas	Glare on surfaces from natural, artificial lighting and advertising retail booths	People mostly use handralis at Escalators	Ciderly lady with limp looks down continuously as she walks	No appreciable difference in Gate among travellers	People gather at rounded fourtain when water apouts go off	Food spills cleaned by staff in less than 5 minutes	People gather in groupe of 3+ at Directories	Woman with care tags esterior surfaces at entrance.	Some people on Call Phones stop to talk		
										3	Person stande at concentric pattern-makes cell cell	People try to seold sys contact in constricted areas	Directory has many areas of glars, shadow and reflection	Majority of people use railing at Escalators but no at stairs or ramps	People rarely look down at rarep when on it	Heel to Toe gate. People with sandals shuffe	Woman uses ladge easting but needs to perch, can't reach seat	Garbage Bine, Planters located in middle of paths	People pointhough Directories	2 Male seens with severe HC pushed in wheelchairs with additional effort needed along corpeted surfaces			
										4	Many people criss cross each other where there is no discernable floor pattern	And the second second second second	A lot of glars on floors in foo court	balcony	other, around, over their shoulder	Most footwear have flat heels	balconies, looking down, across and ahead		Some frustration while at lipscing at Directory				
										5	People travel along contrasted linear patterns but ories cross concentric patterns	People often move to right when yielding to oncoming traffic	Glare, shadows are stark at entrances and in open strium	People seem to move along edges of balcony railings, guards	Young women in High Heels rarely look down	Most people have flat shoes	Seating is limited and appraisally located	Security take notes, talk to Rolice, look at women as they pass	People confused, retake looks and wipe brows at directory, take long time to discover information				
									Į	TIER 2 OPEN (ODES More incidents of people	Moments of anciety when	Glare on floor as sunlight	geogle with heavy here	Many geogle look sheet	One gengo struccios			There are no Signs or				
										6	running into each other on concentric patterns	people possiyield to each other		people with heavy items rest of Atrium Balcony, and lean on railing			People lean over at fourtain. Bad Posture	during lunch traffic	Directories at North East Entrance				
										7	Traffic patient criss crosses in open-wider and concentric patiented areas	freinanyfre mythn	- Lower lighting levels-100-200 Lx in Cafe		and the second	Majority of people are ambulatory							
									Ī		Most Ramps, edges of Steps as contrasted in black Paggie kasp to gottem edges		Contract in light levels at Hi- End Retail I mid level was and and upper or lower levels. Major lightidark patterns from		Most People look down when climbing down stairs								
										9	People keep to pattern adges when passing each other	and after going down escalators	Major lightidark patterns from surlight at open areas	recordings of height. Railings too high					2				
									F	TIER 3 OPEN (Out finished No shirty surfaces	People pause at top / botto	n										
									1		at Cafetoria	of eaculators, elevators, look around											
											Variety of Surfaces, carpet, serrazoo, quartz tile, and staine calc filtoring	pass by per minute											
										12	Many different Materials, patterns and colours along flor at East-West Entrance	,											
									Ī	13	A few dogs are slid along floor by leash and owner												

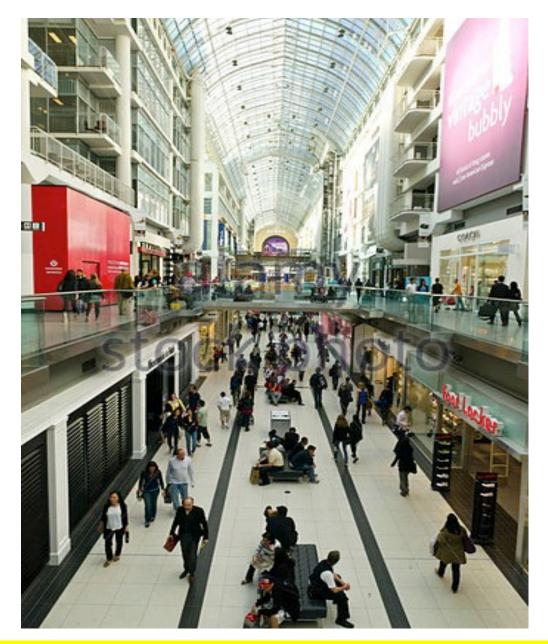
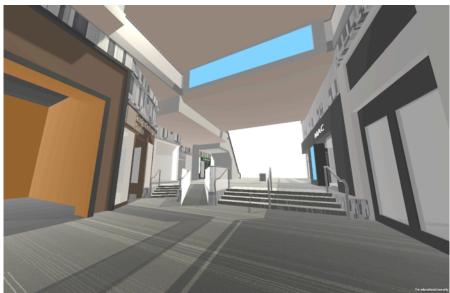




Image: image of Eaton Centre, main corridor, and image of researcher using virtual reality goggles to look at 3D images of Eaton Centre









Projektifon

CELING: White dyword. Innour frenkur

WHALES Manur couleuctives, White Gross (prine) wishout wood.

COLOUR SCHEME C = 24 Add a Contrast behavior until floor, for tout un printed posture field cult



Image: various images of research work showing 3D views of Eaton Centre and building materials palettes used in creating the images



Image: woman in a virtual reality setting at Toronto Rehab's StreetLab facility