

# Educational Libraries as a 21st model

Interconnected Learning Communities

## Old buildings made New

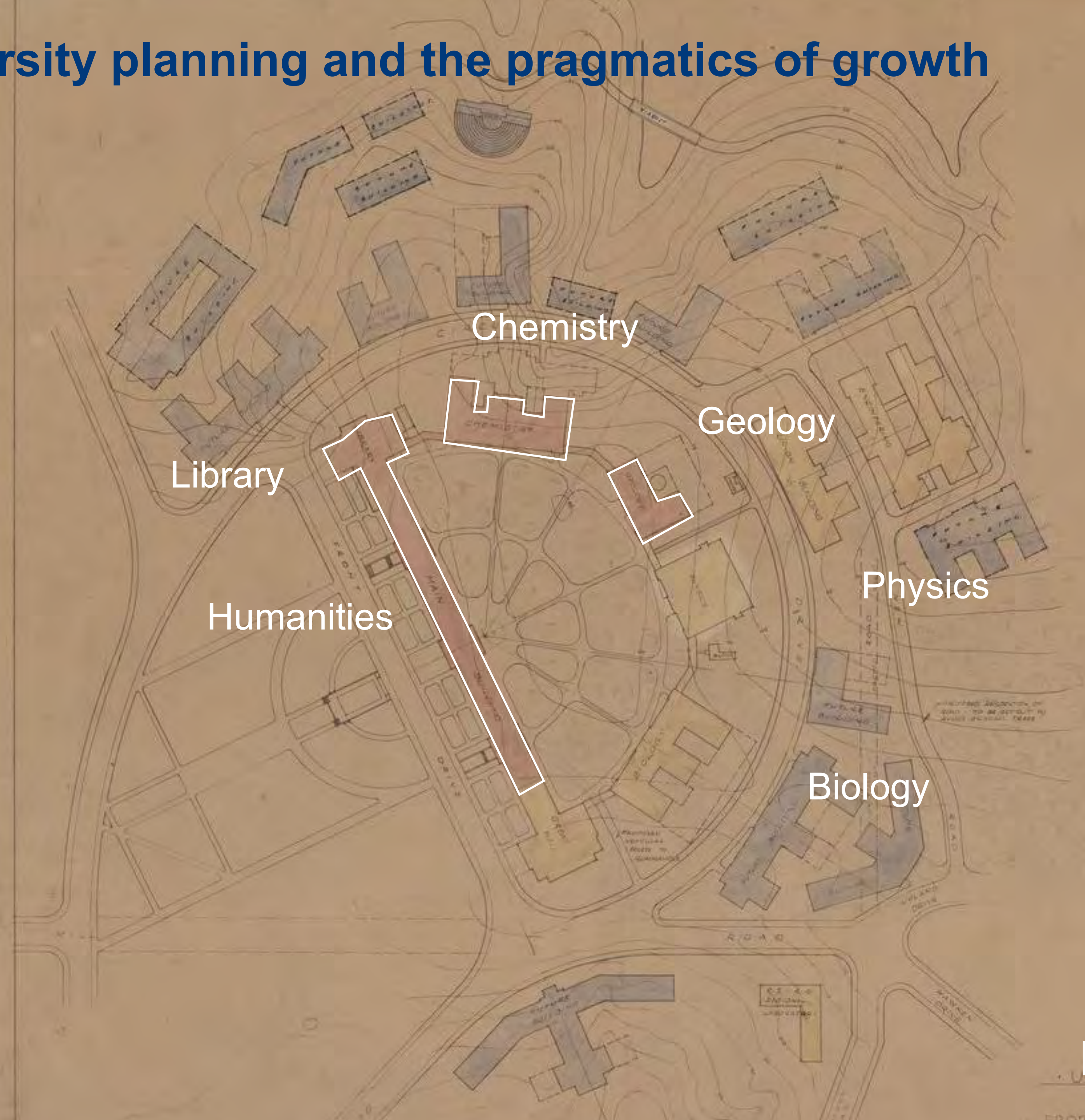
# Educational Libraries as a 21st model

Interconnected Learning Communities

## Old campuses made New



# University planning and the pragmatics of growth



Hennessy & Hennessy - 1949



**“Inter-war stripped classical style. It is also a striking example of 1930s art deco along with a hint of grand fascist-style architecture”**





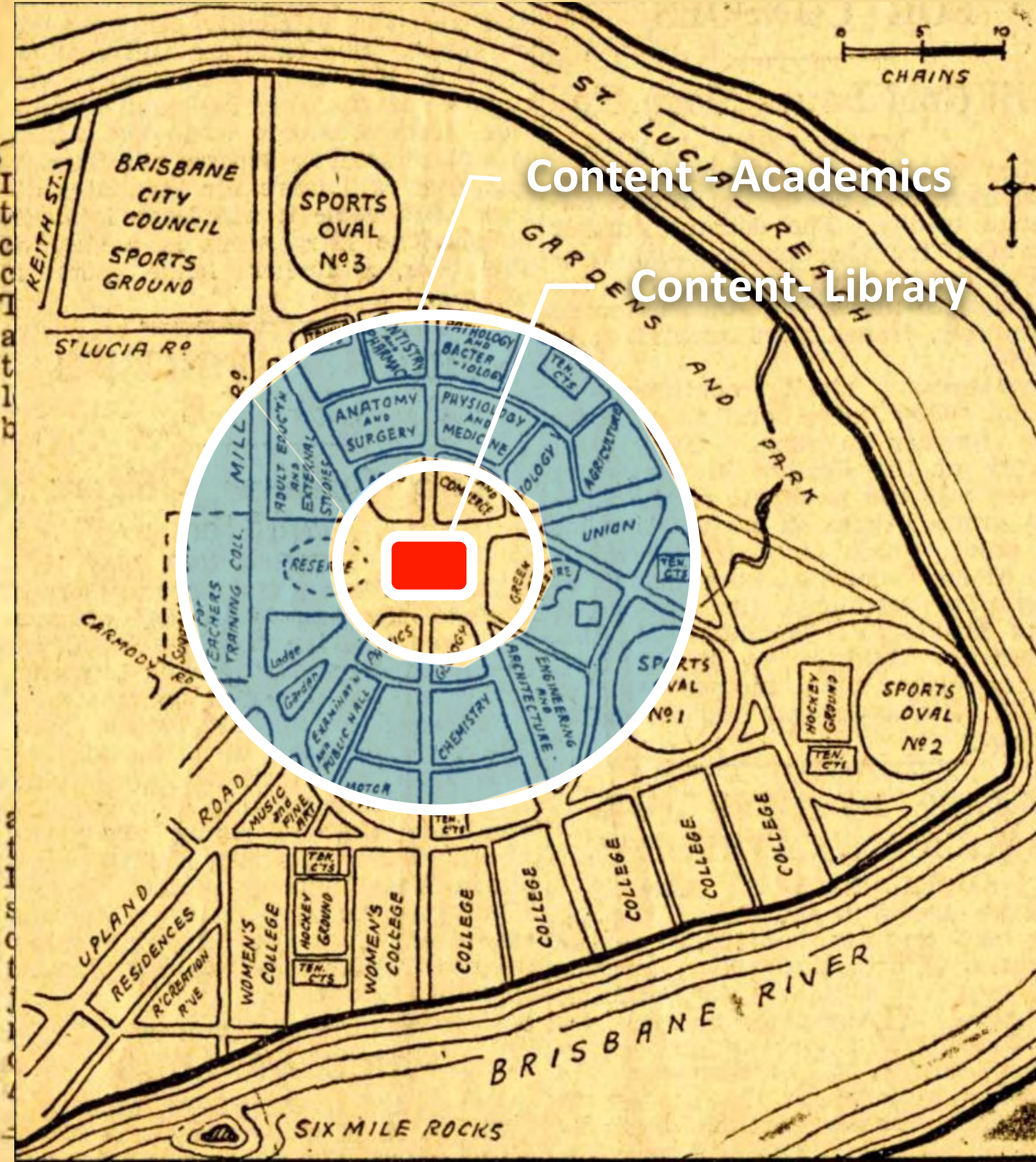
20th century  
University  
planning

# DESIGN FOR NEW UNIVERSITY

## *Conno Rand (?) 11/5/1935* A Permanent Home

A proposed design for the new University buildings at St. Lucia, embracing the ideas of Professor R. W. H. Hawken, on the arrangement and general lay-out, that should be followed in planning and building a new home for the University is shown in part in the accompanying drawing. Whatever design is adopted it is fairly certain that some similar plan will be followed when it is decided that the University shall occupy a permanent home in place of the temporary, unsuitable, and cramped quarters in which it has been accommodated since 1910.

The design, which has been drawn by Mr. A. J. M. Stoney, of the Engineering Department of the University, has been carefully thought out, having regard to all the requirements of a modern University, combining architectural beauty, and imposing dignity with accessibility and utility. The blocks of buildings housing the various faculties form part of a compact, orderly plan, due attention being paid to the suitability of location of the various science departments.





Teacher-led spaces      Content from Academics





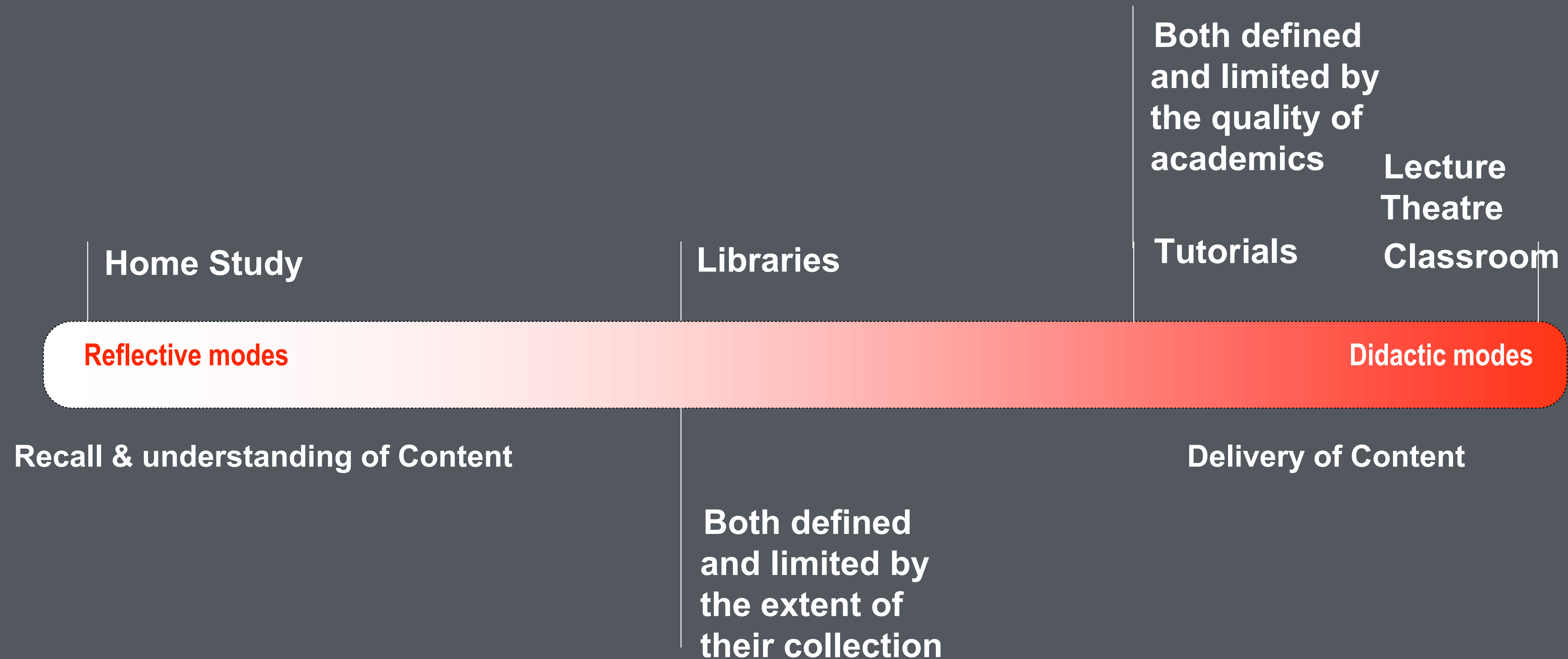


Student directed spaces

Content through catalogues



# 20th Century Teaching Model - Based on Content delivery





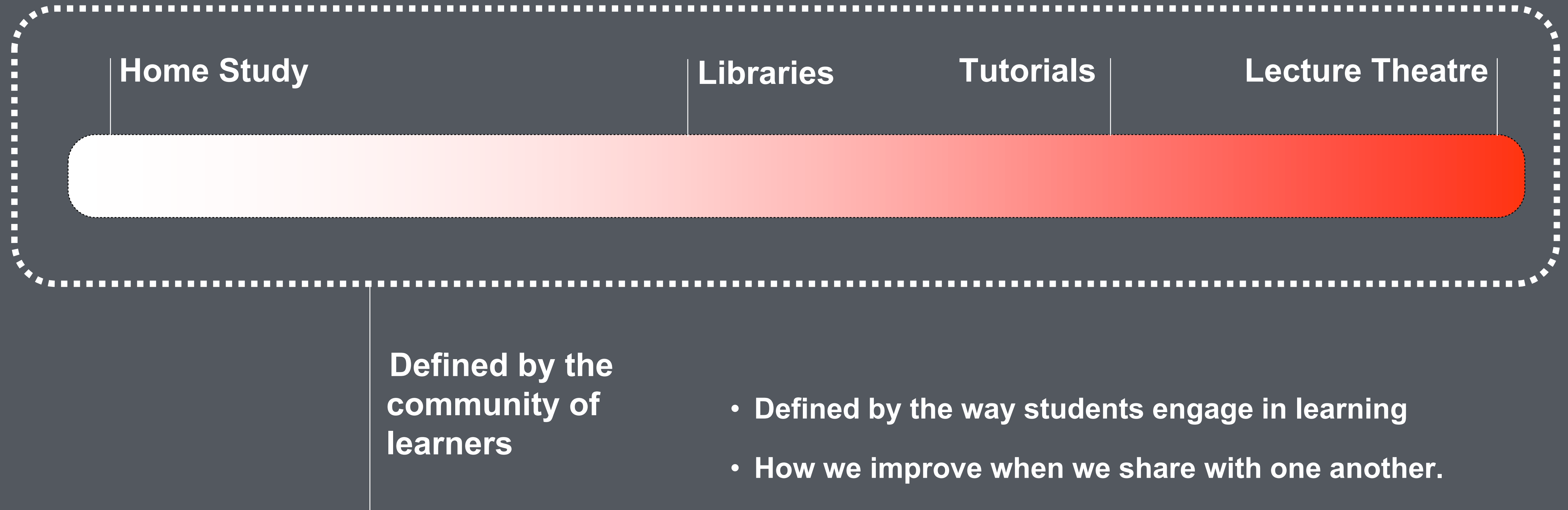
# Access to quality content through Information Technologies.

The rise of MOOCS  
or Massive Open Online Courses

Accessing the best content available in  
the world and the leveraging of this online  
learning to improve the campus-based  
student experience



# 21st Century Teaching Model - the democratisation of content through web technologies



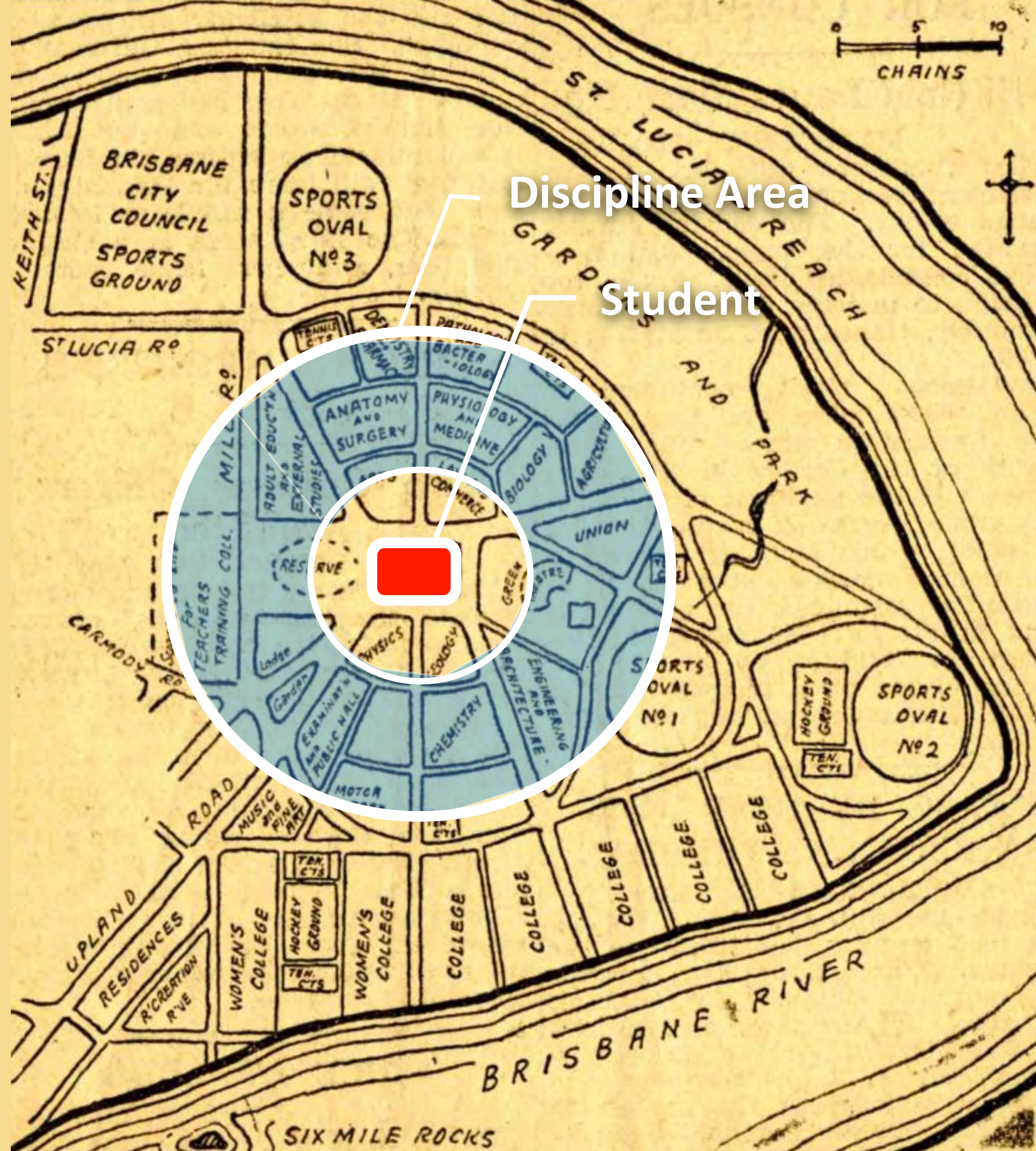






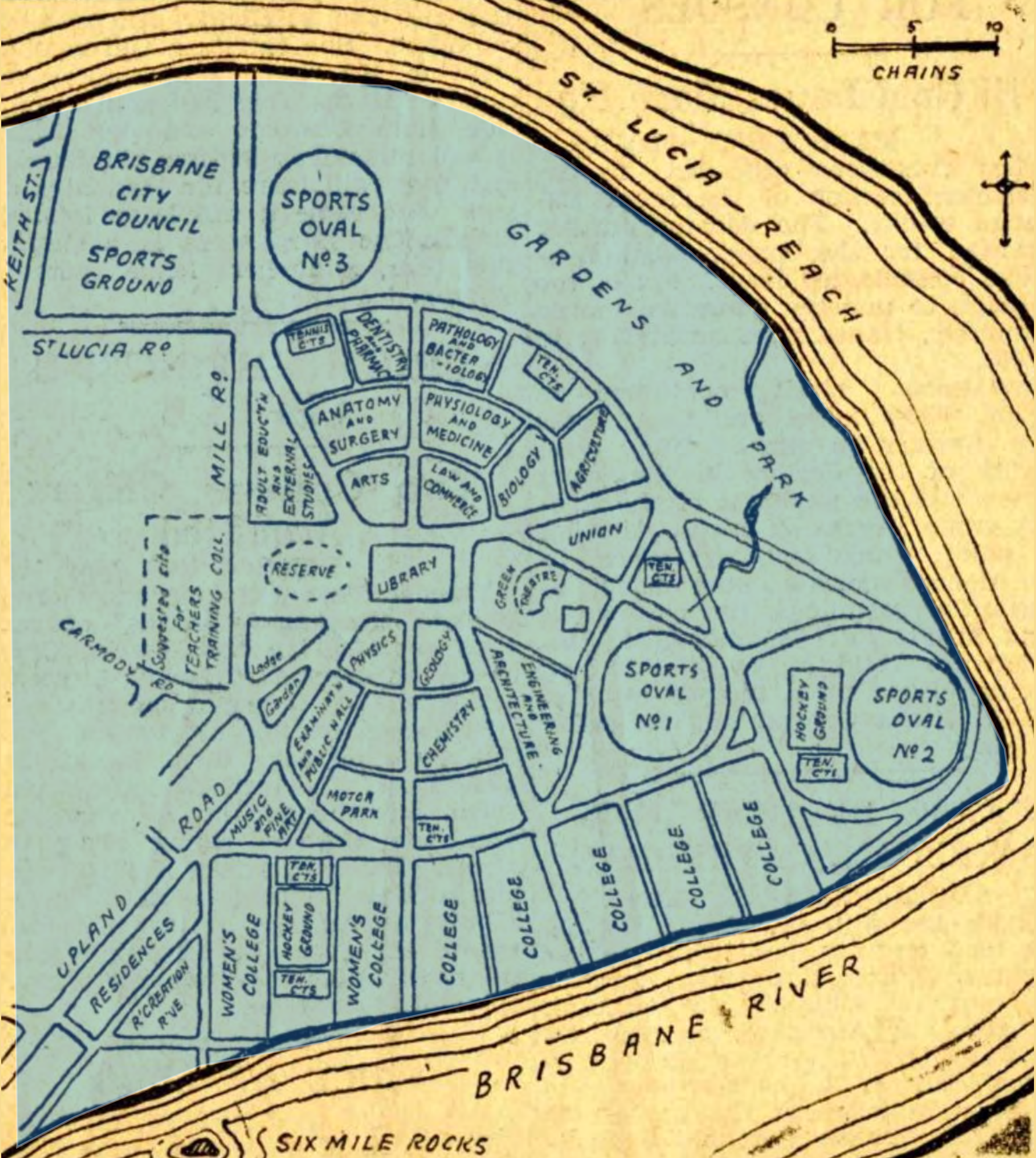
# Better support for the student

- More diverse study options
- Supporting working with peers
- Information skill support
- IT support
- Curriculum support
- Student wellbeing support





Study anywhere





A

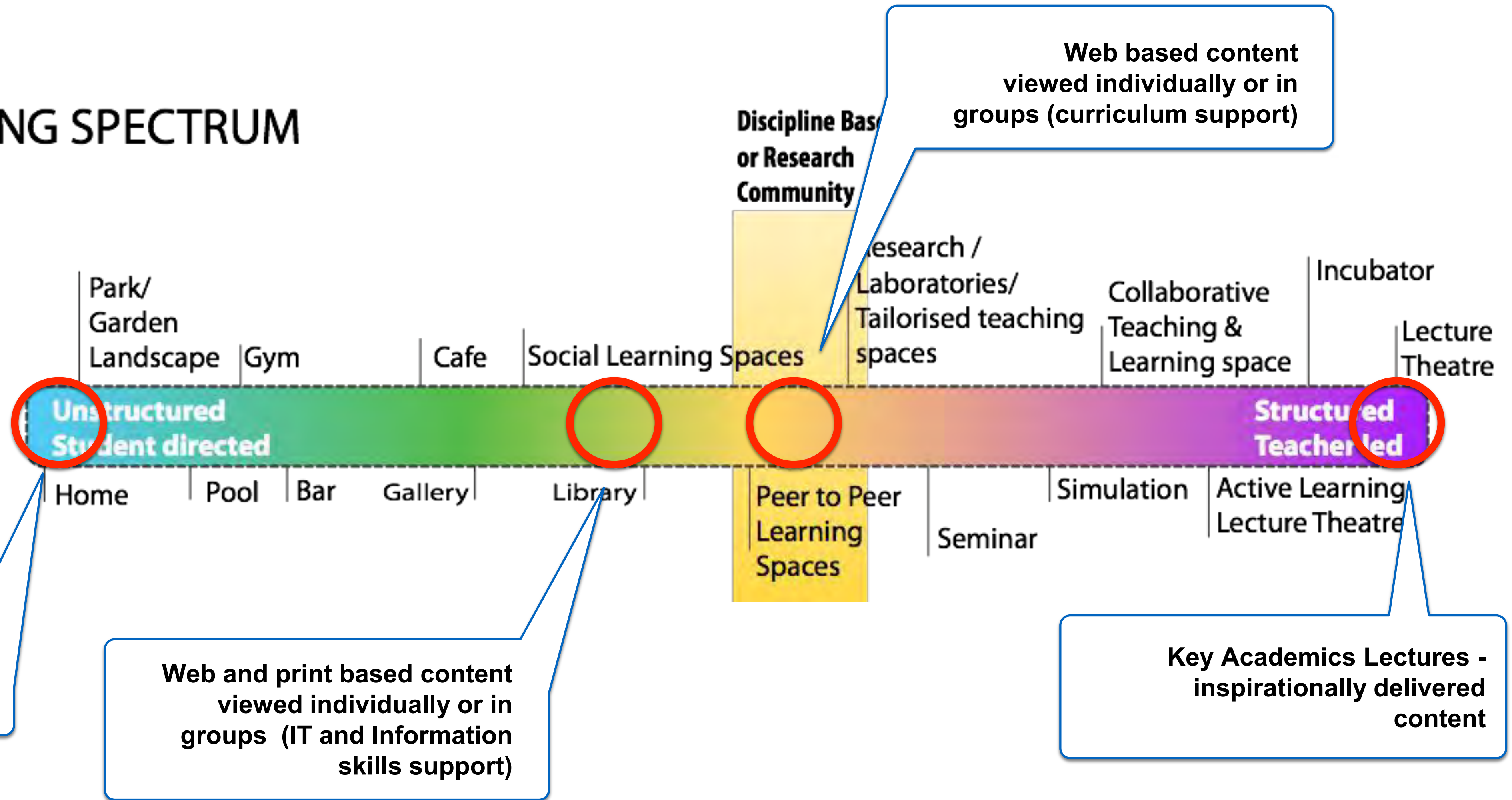
# Student Directed Learning Spaces

‘Flipped Classroom’ where **content is delivered**.....

## LEARNING SPECTRUM

© WilsonArchitects

PLACES





B

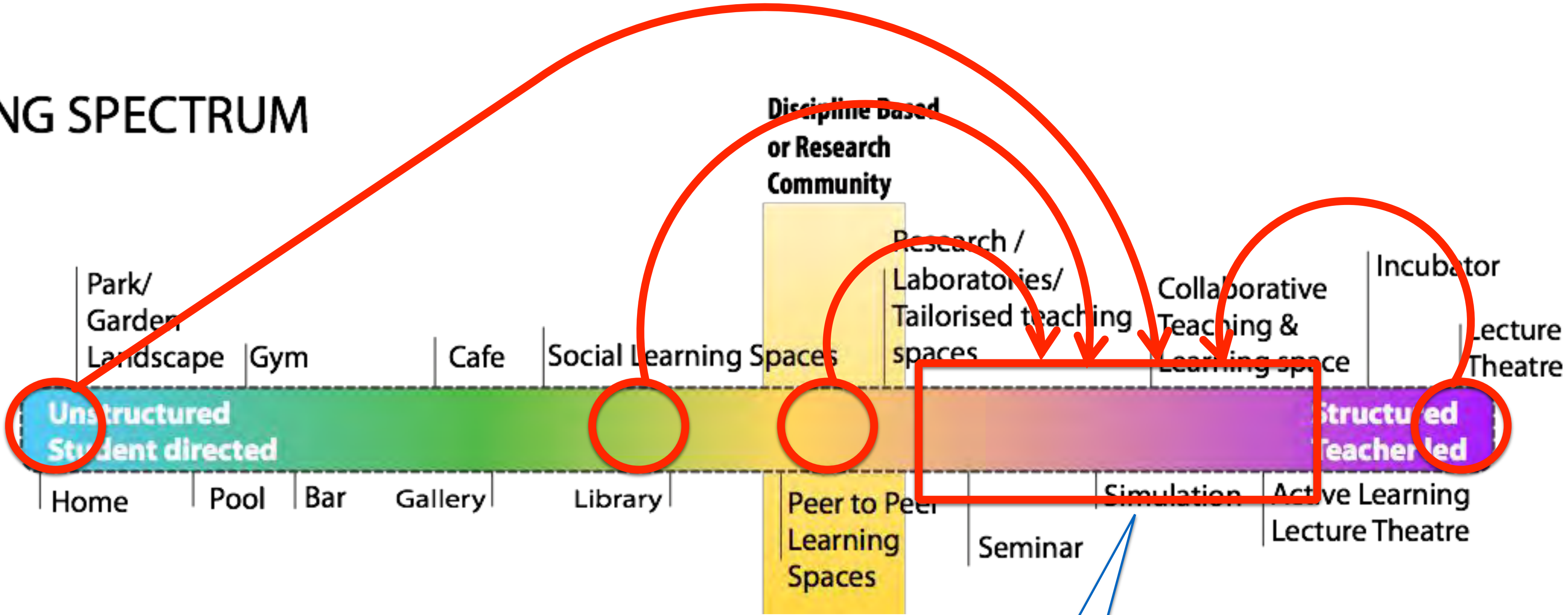
# Teacher-Led Learning Spaces

‘Flipped Classroom’ where the **exposition of content** is disseminated

## LEARNING SPECTRUM

© WilsonArchitects

PLACES





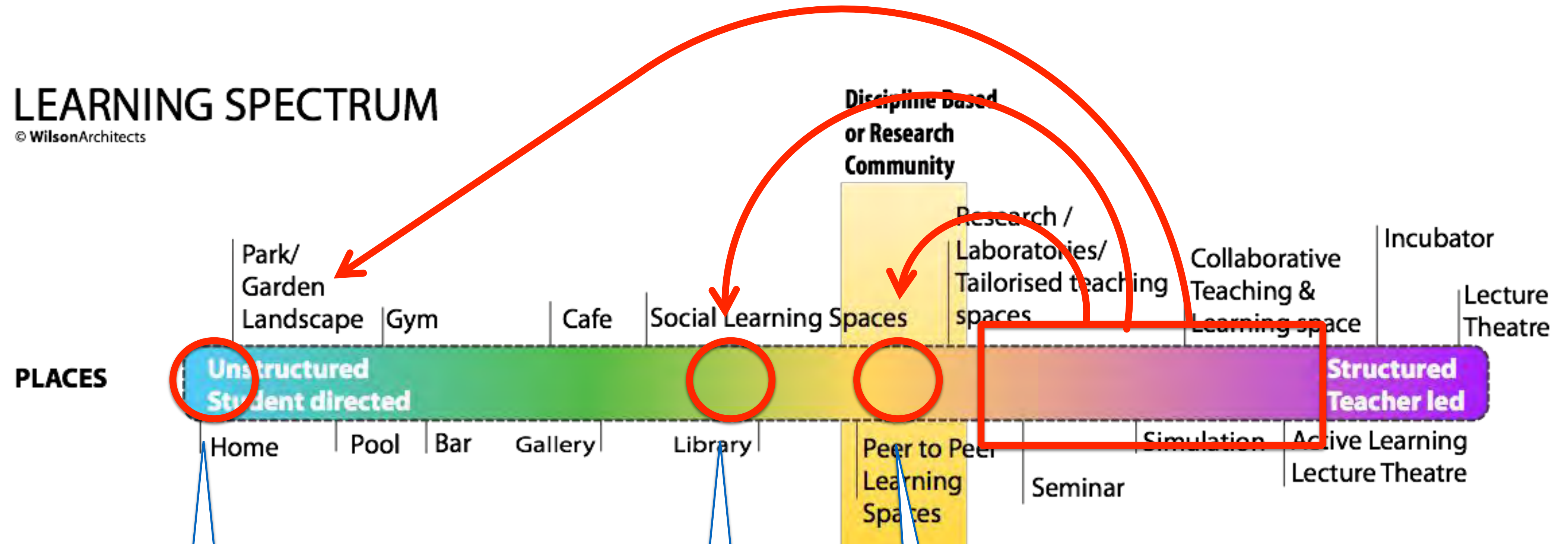
©

# Extension of teacher-led learning

'Flipped Classroom' where knowledge is further explored and developed

## LEARNING SPECTRUM

© WilsonArchitects



Continuation of project based  
learning - independent

Continuation of project based  
learning - independent and  
group with information and IT  
support

Continuation of project based  
learning - independent and  
group with curriculum support



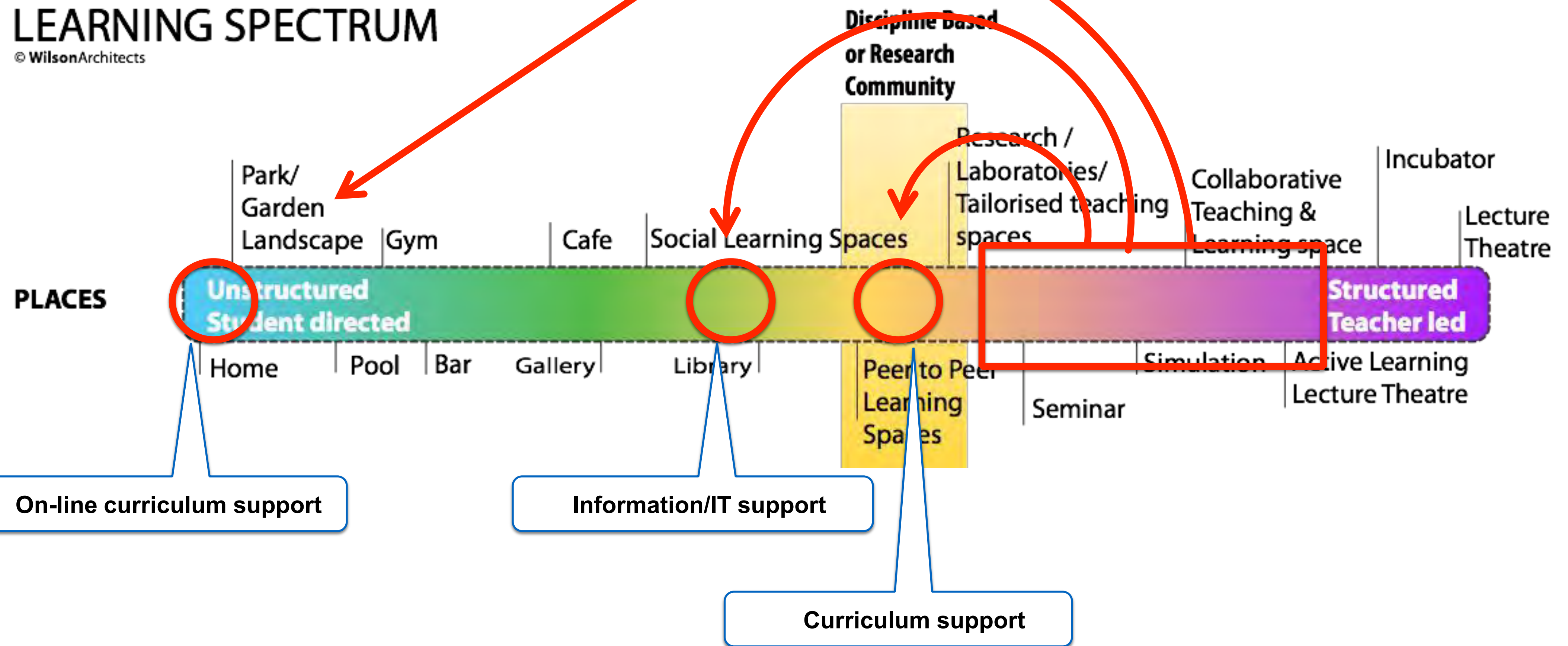
©

# Extension of teacher-led learning

'Flipped Classroom' where **support** is found

## LEARNING SPECTRUM

© WilsonArchitects





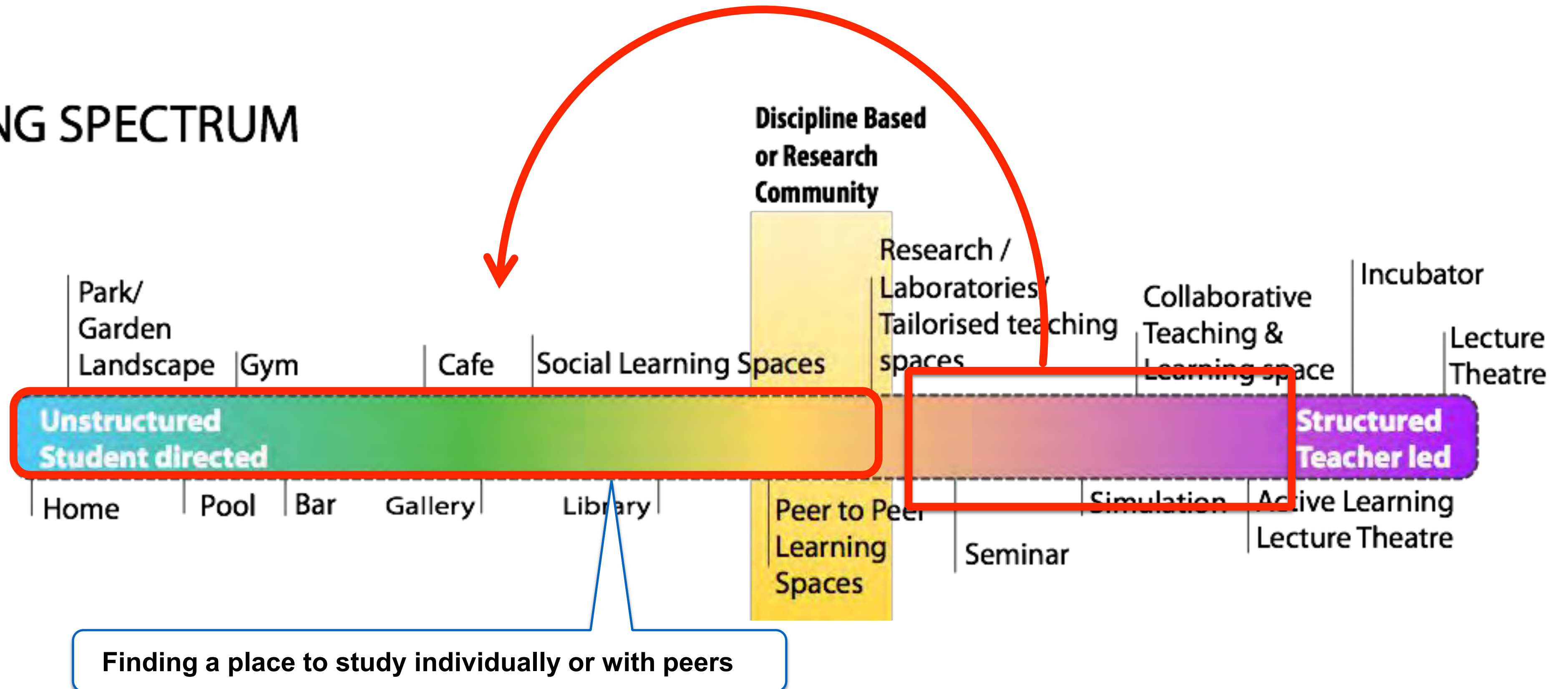
# © Extension of teacher-led learning

'Flipped Classroom' where **space** is found

## LEARNING SPECTRUM

© WilsonArchitects

PLACES



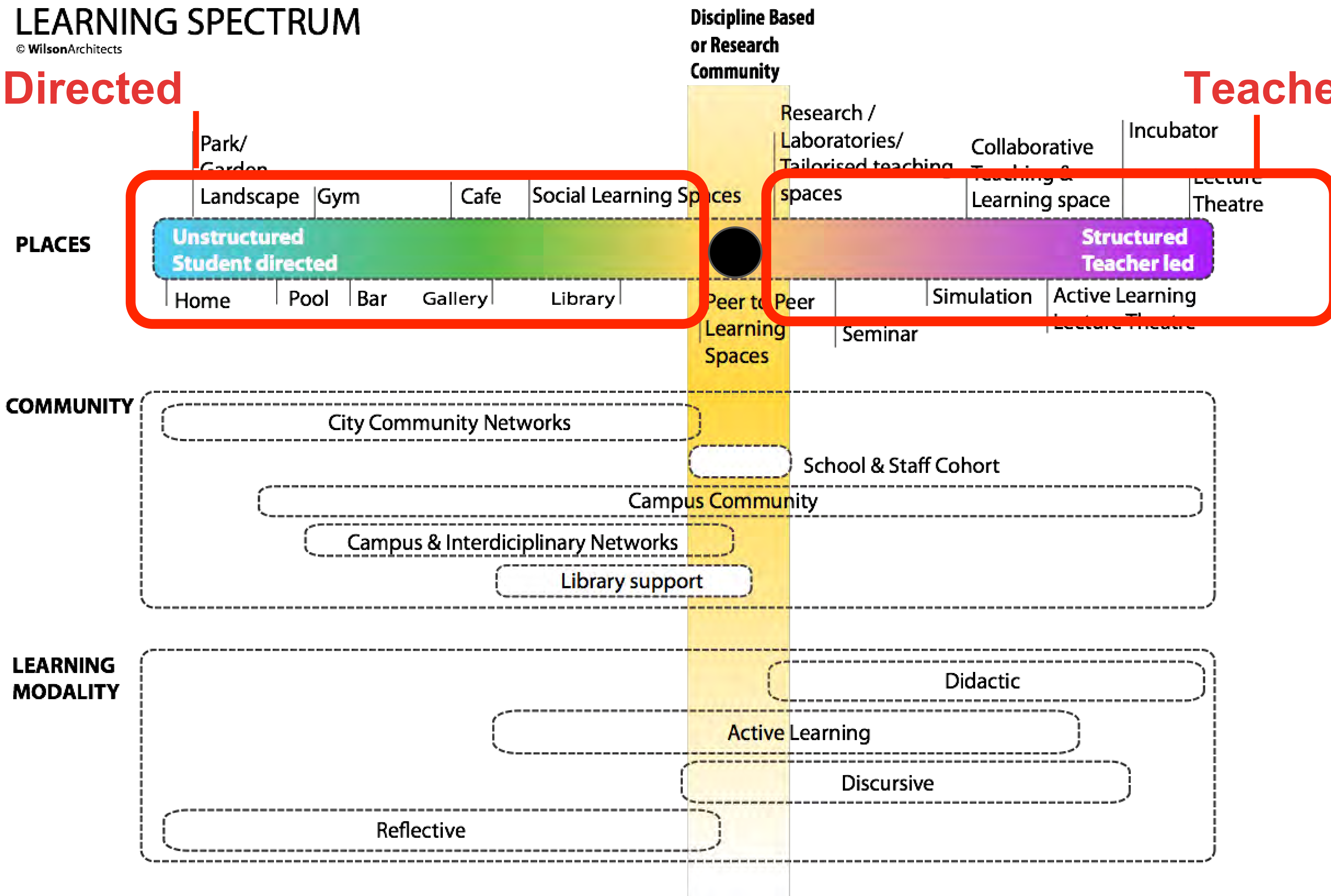


# LEARNING SPECTRUM

© WilsonArchitects

Student Directed

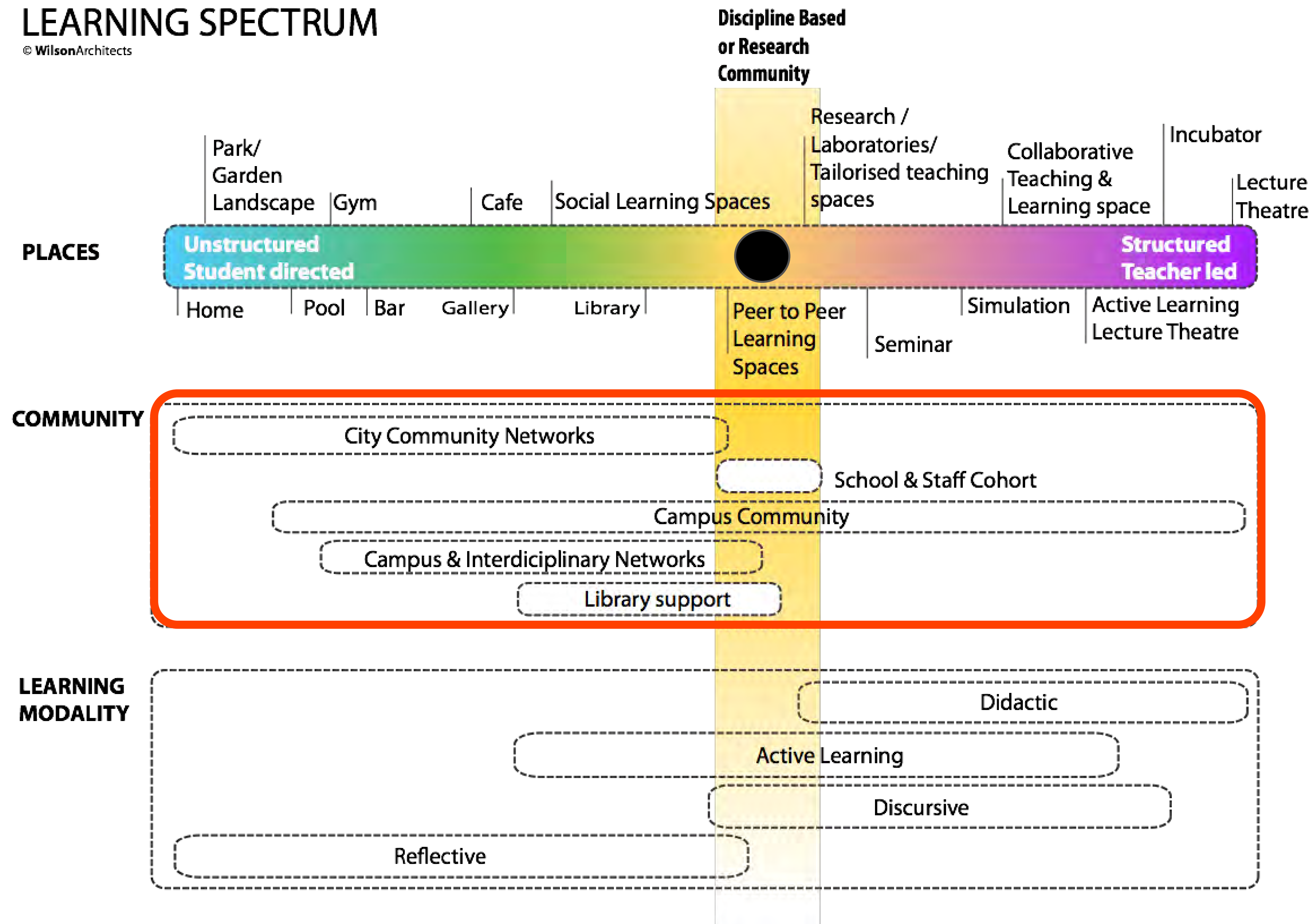
Teacher Led





# LEARNING SPECTRUM

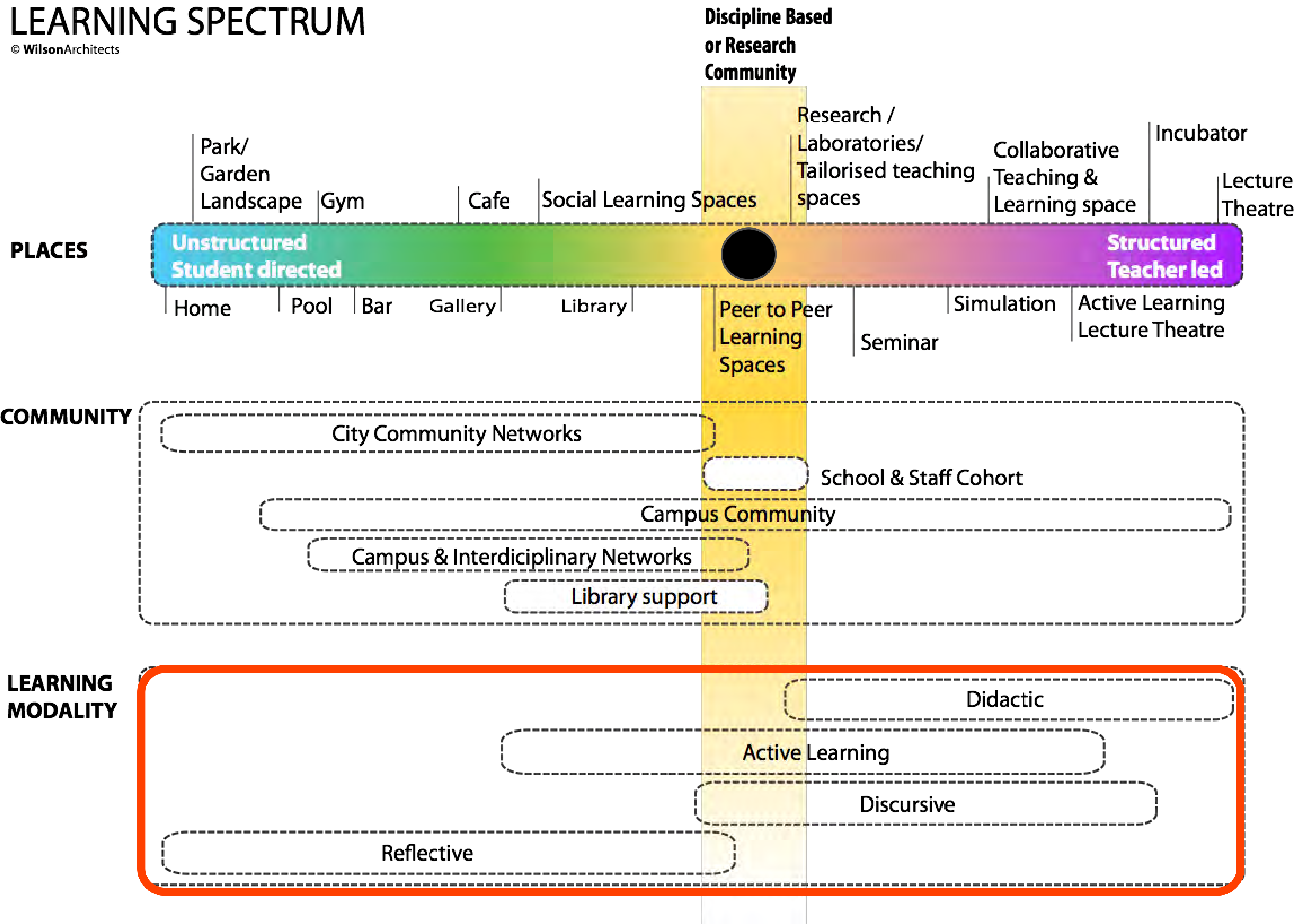
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# LEARNING SPECTRUM

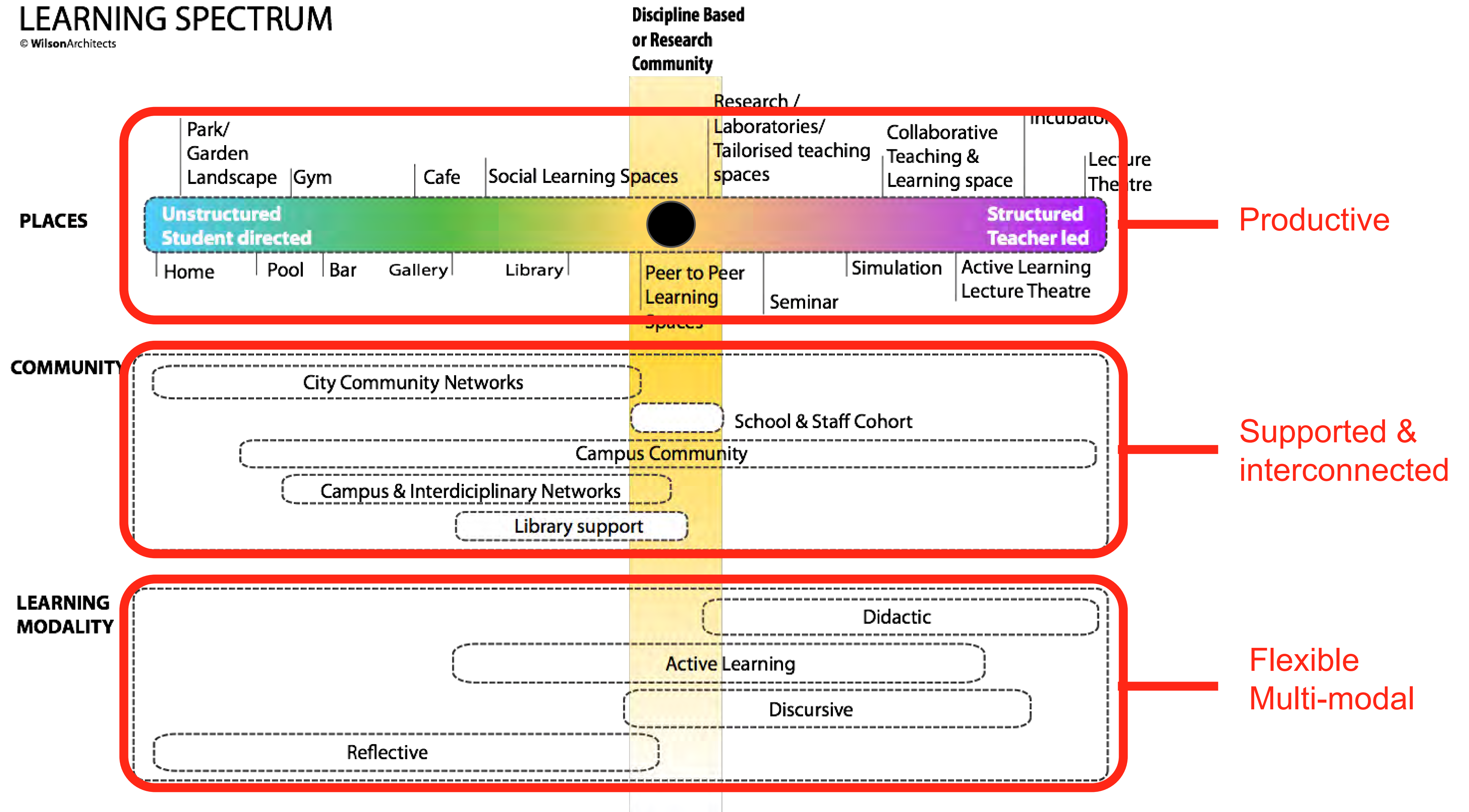
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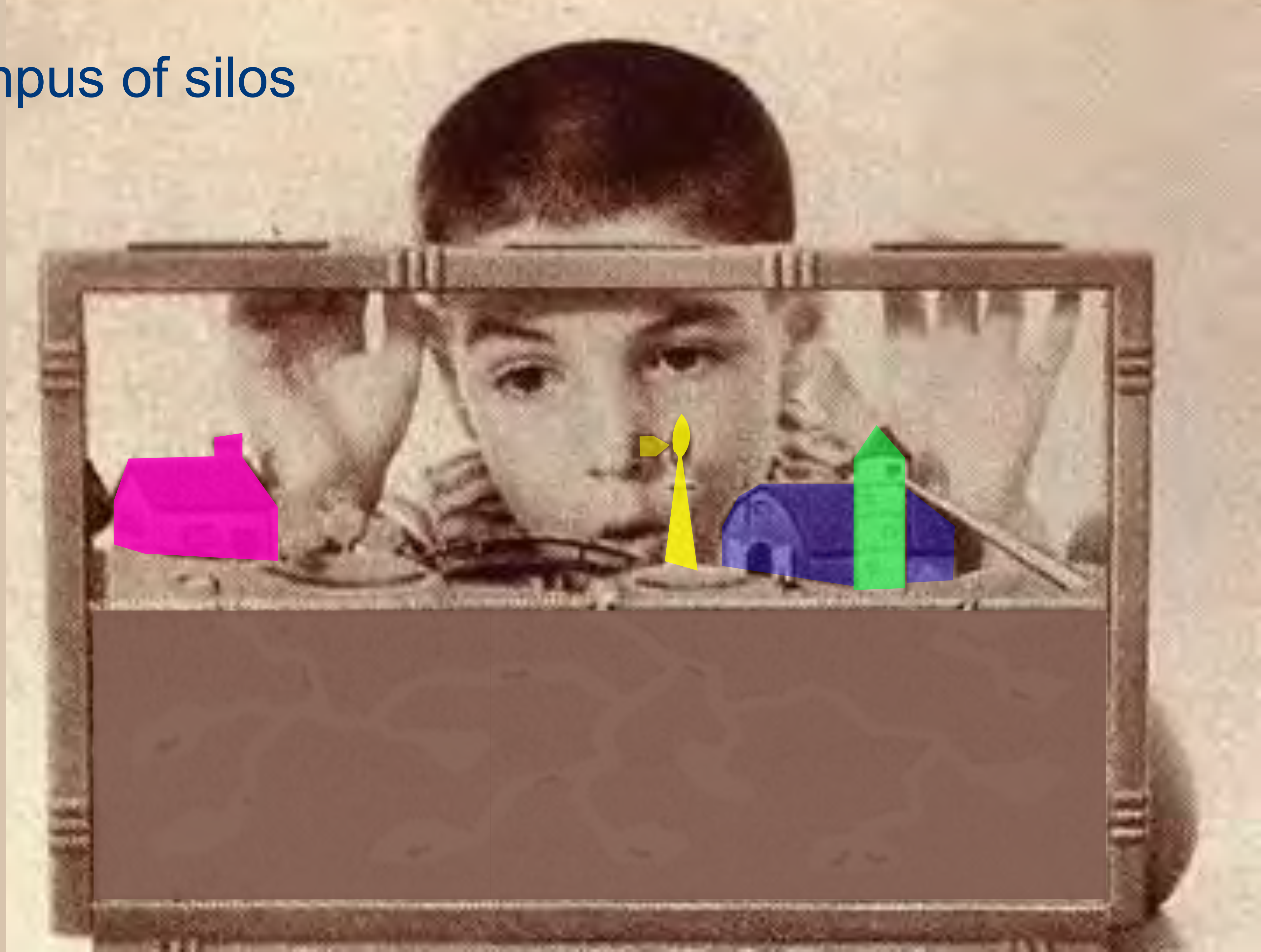
# LEARNING SPECTRUM

© WilsonArchitects





A campus of silos





# A network of spaces



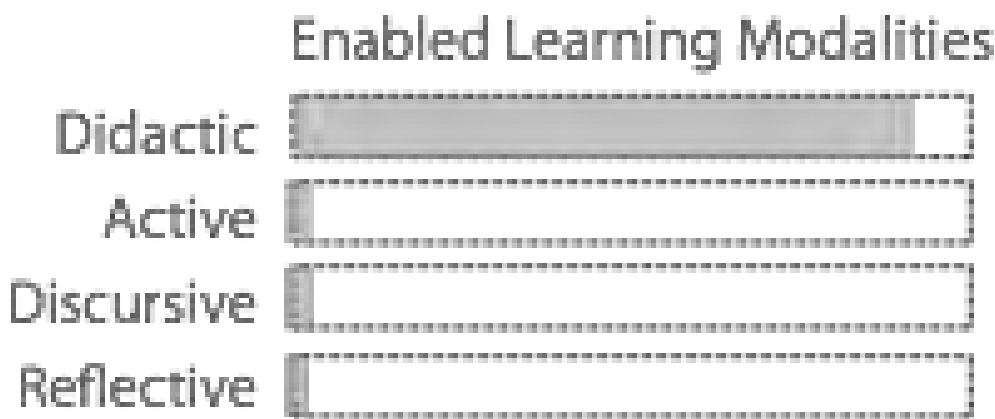


# Teacher-led spaces

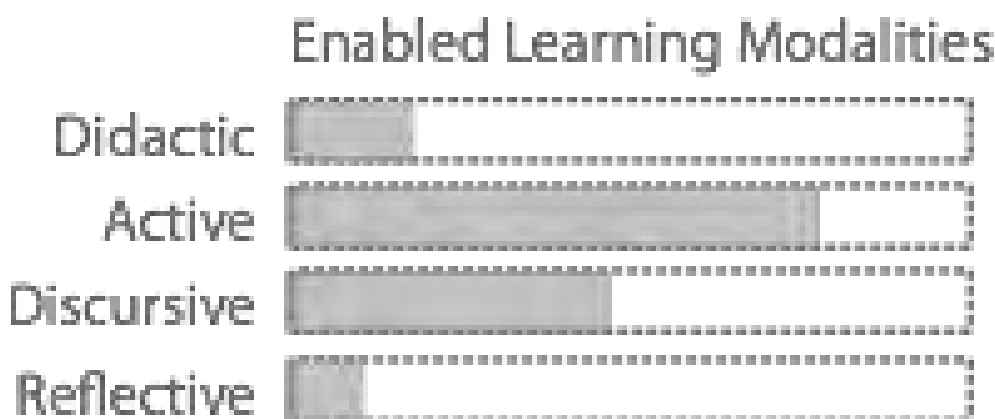




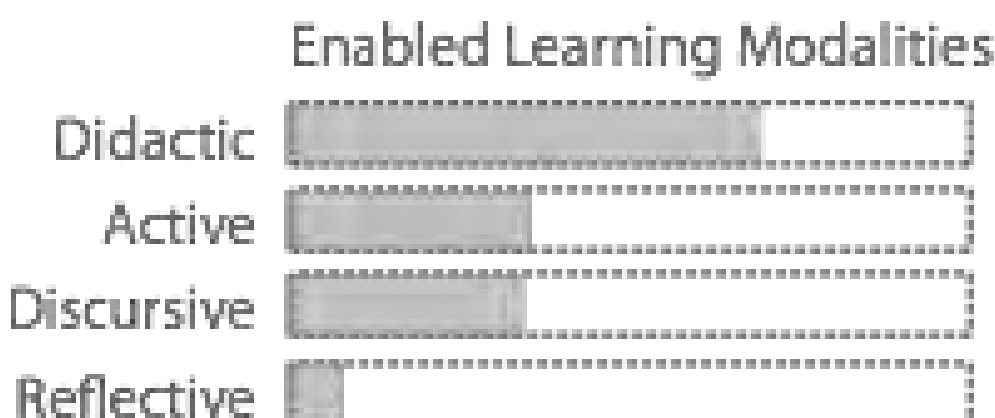
# Mapping space



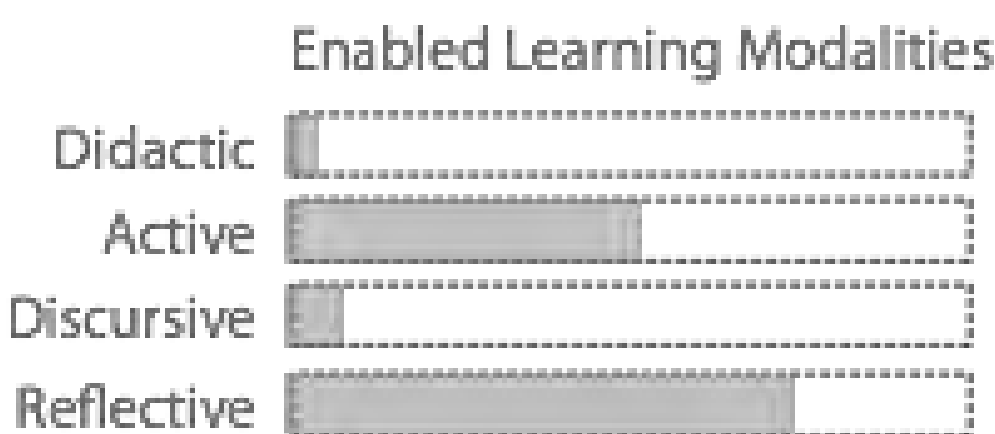
Traditional lecture theatre



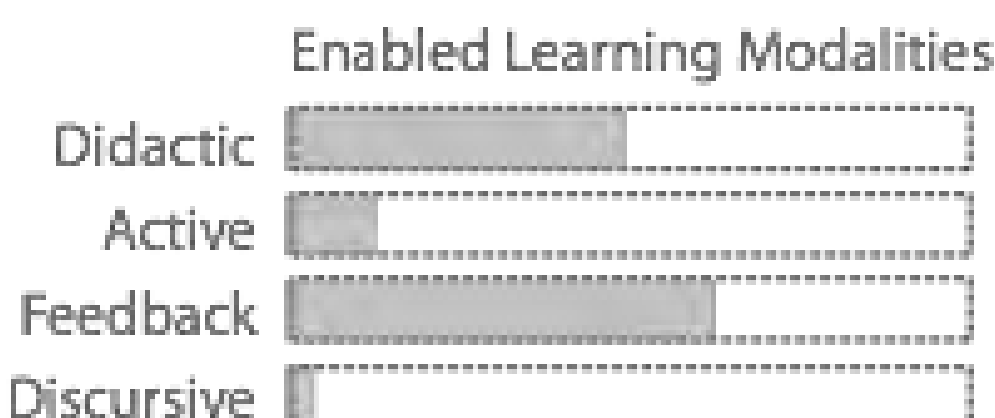
Collaborative Teaching and Learning Space



Active Learning Lecture Theatre



Peer to Peer Learning space



Research Incubator



# Electrical Engineering Project

Collaborative Teaching and Learning Centre to support 99 students



**Axon Learning Centre**  
UQ - Completed in 2010



# Didactic Modality

Content delivery and instructional



**Axon Learning Centre**

UQ - Completed in 2010



# Active Modality

Students work in groups using desktop technology, large format screen as well as whiteboards.

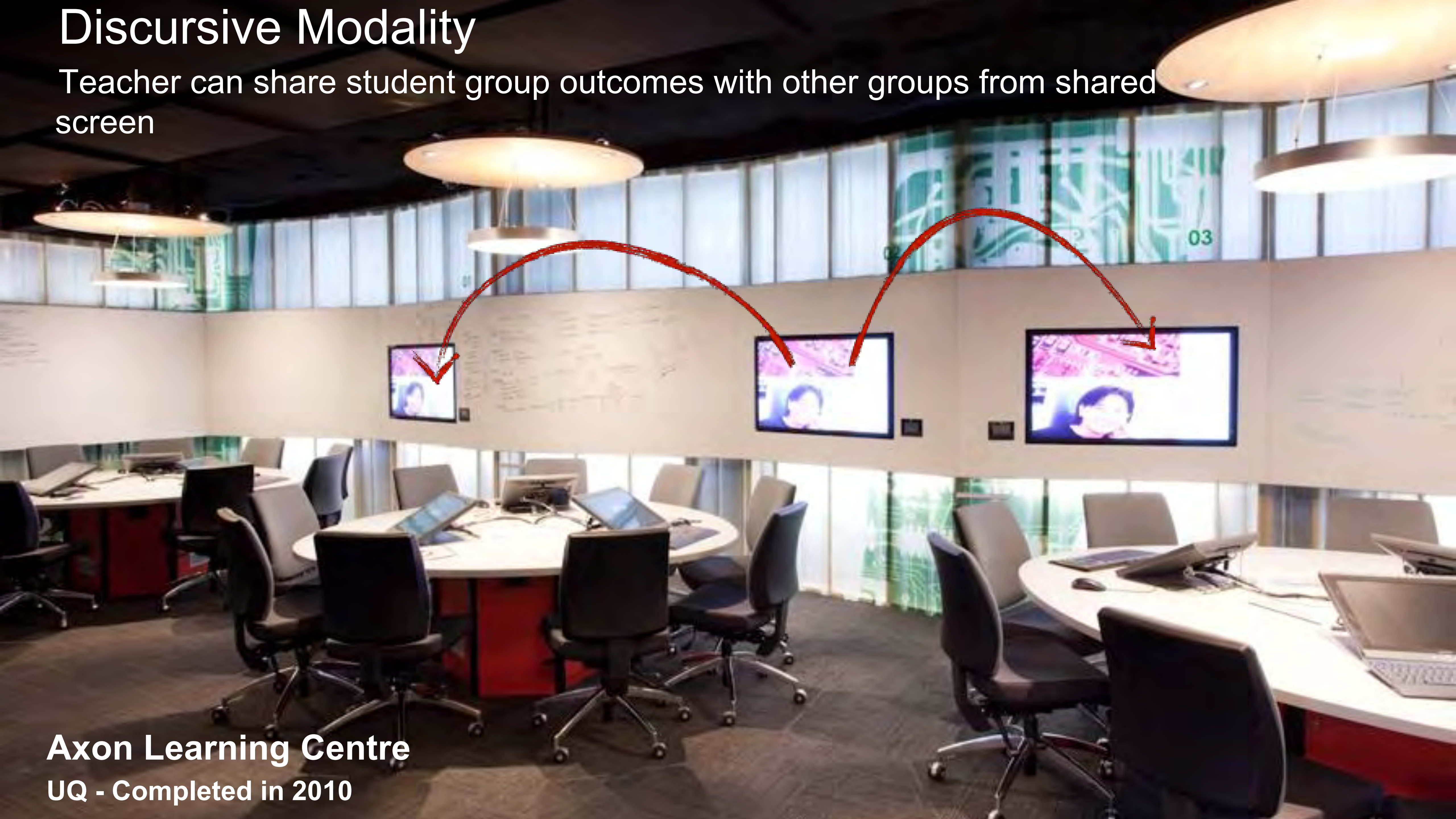


**Axon Learning Centre**  
UQ - Completed in 2010



# Discursive Modality

Teacher can share student group outcomes with other groups from shared screen

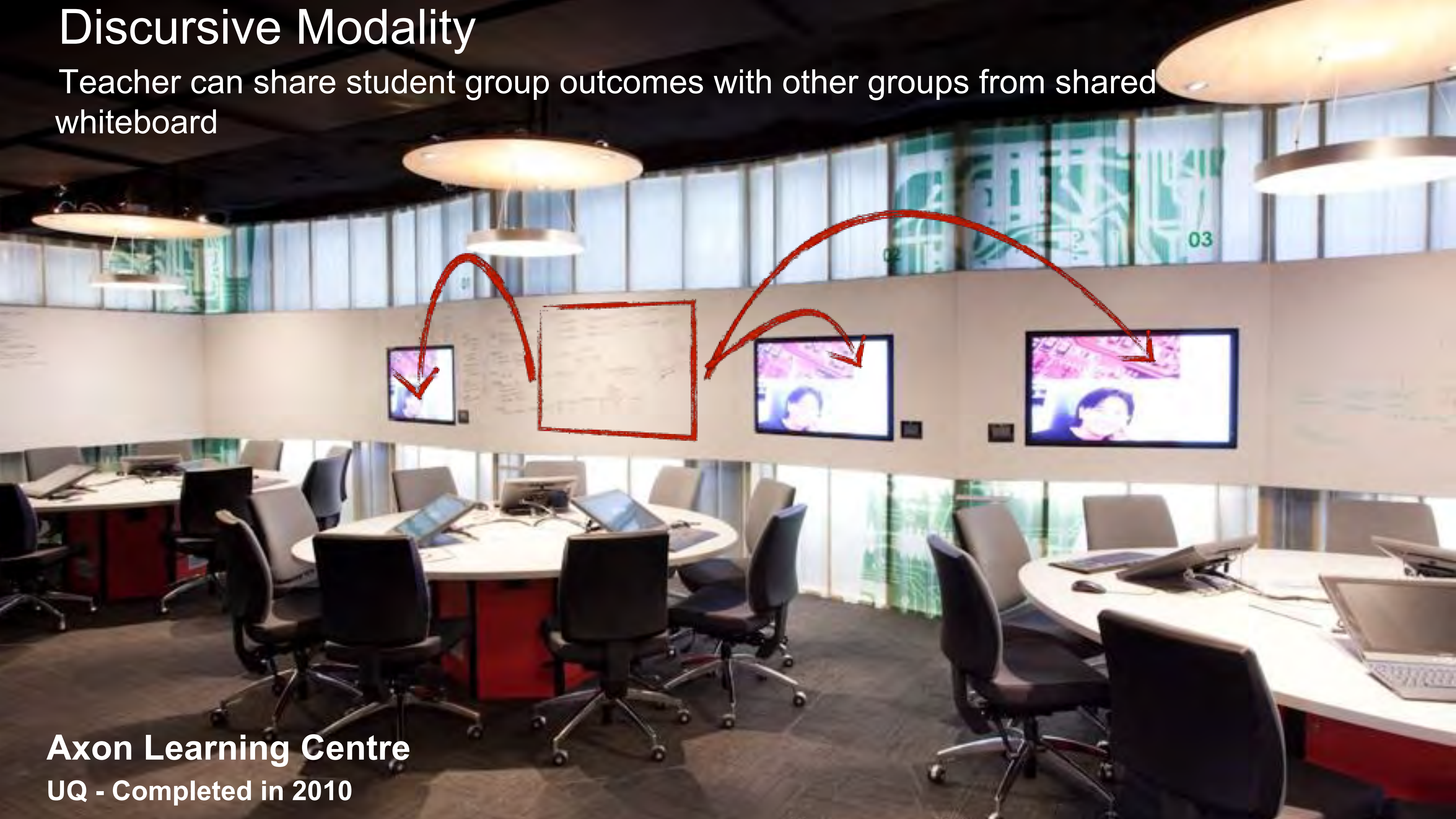


**Axon Learning Centre**  
UQ - Completed in 2010



# Discursive Modality

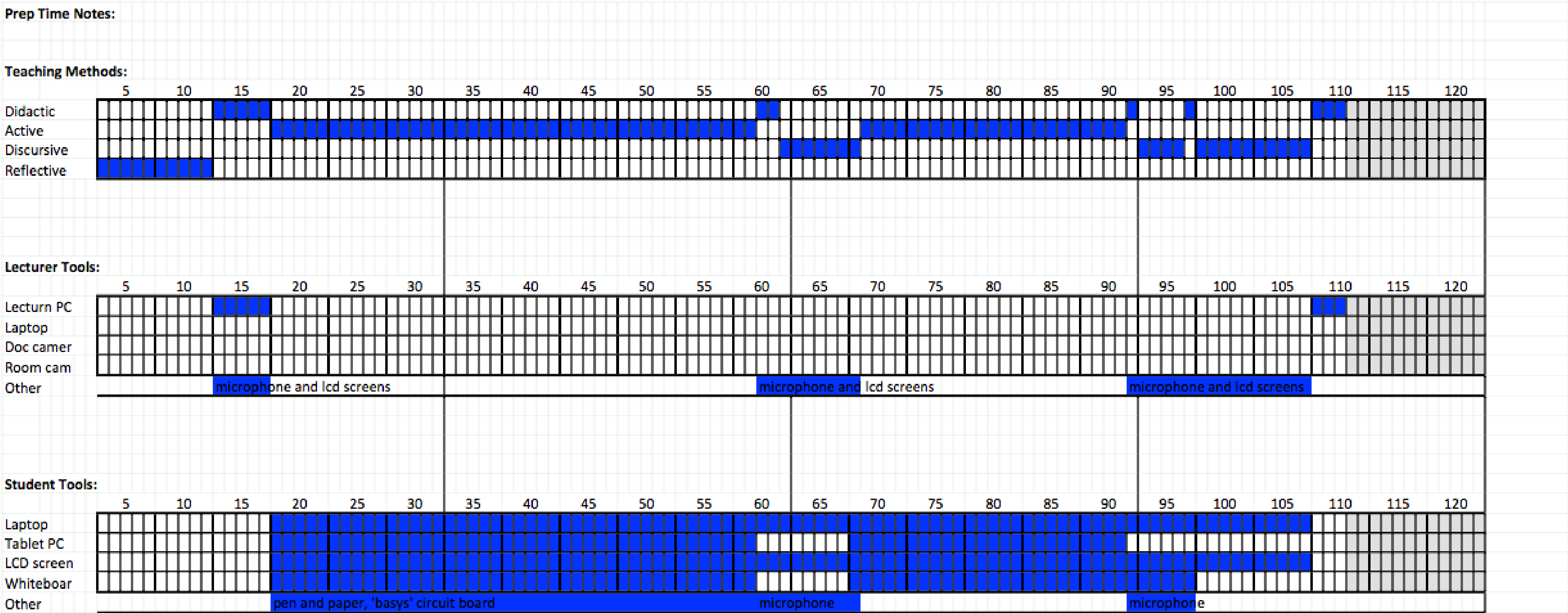
Teacher can share student group outcomes with other groups from shared whiteboard



**Axon Learning Centre**  
UQ - Completed in 2010

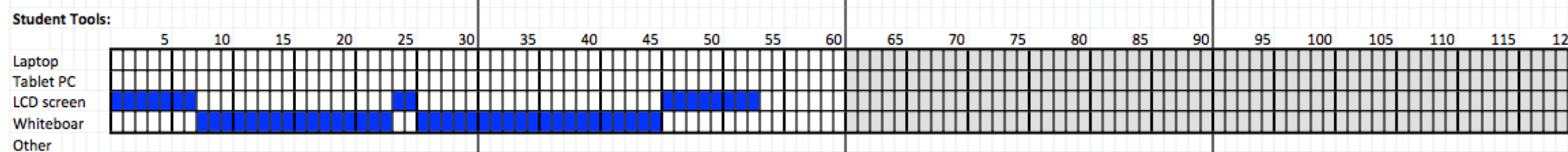
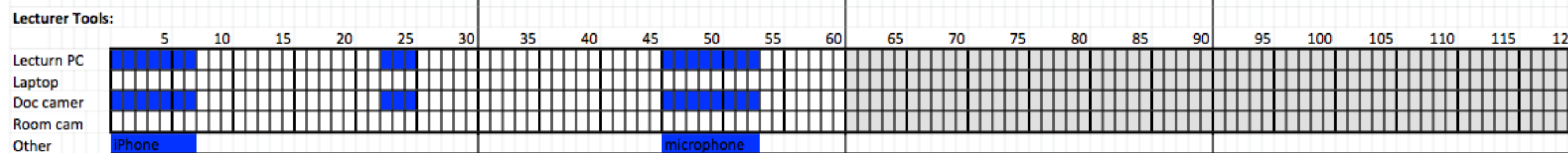
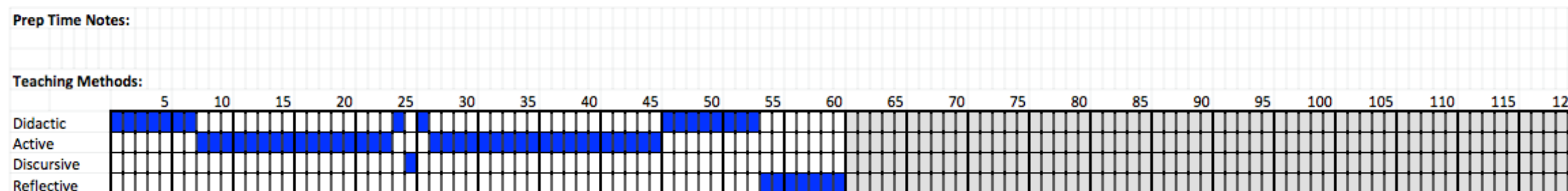
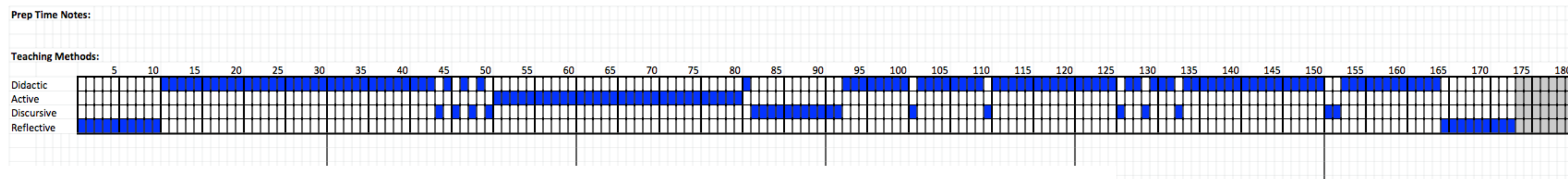
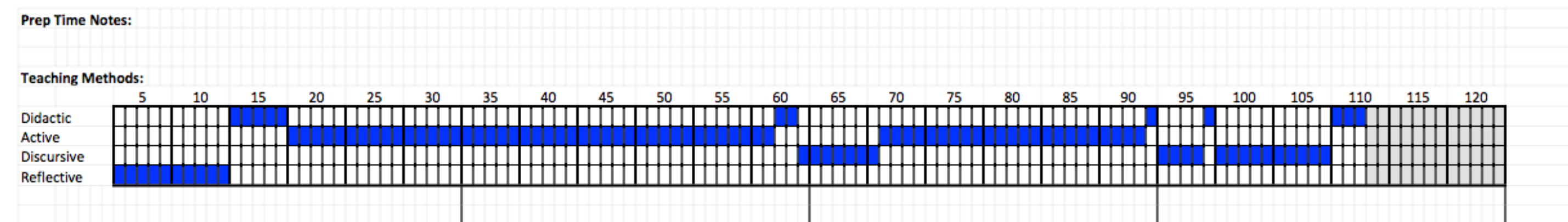
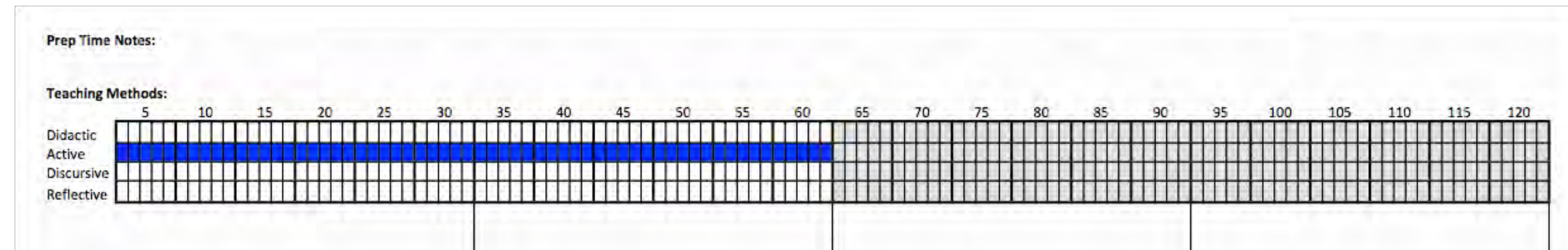


# Comparative pedagogy mapping for axon learning lab.





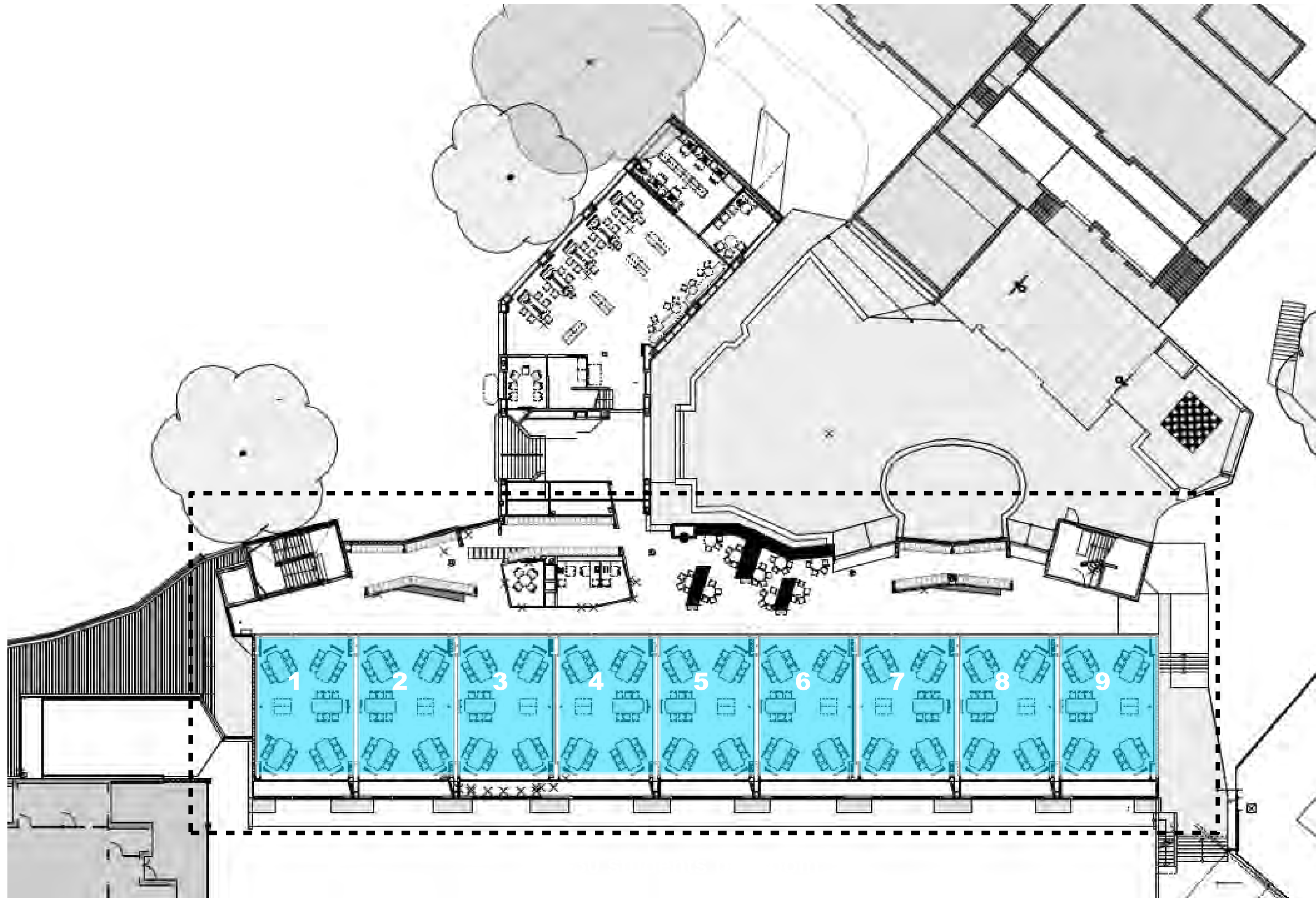
## Comparative pedagogy mapping for axon learning lab.





# Highly flexible space for highly flexible pedagogy

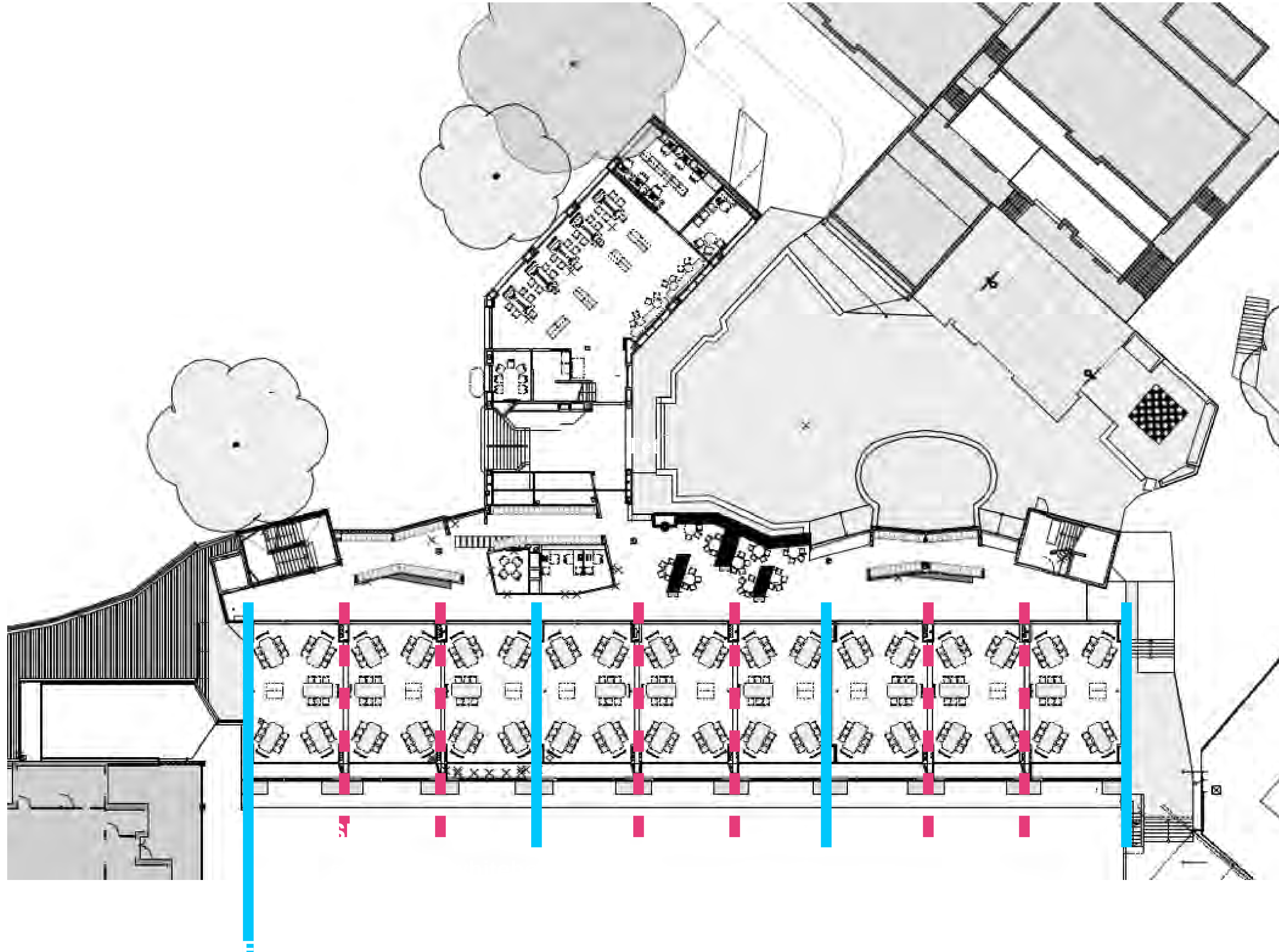
Brisbane Boys College





## Highly flexible space for highly flexible pedagogy

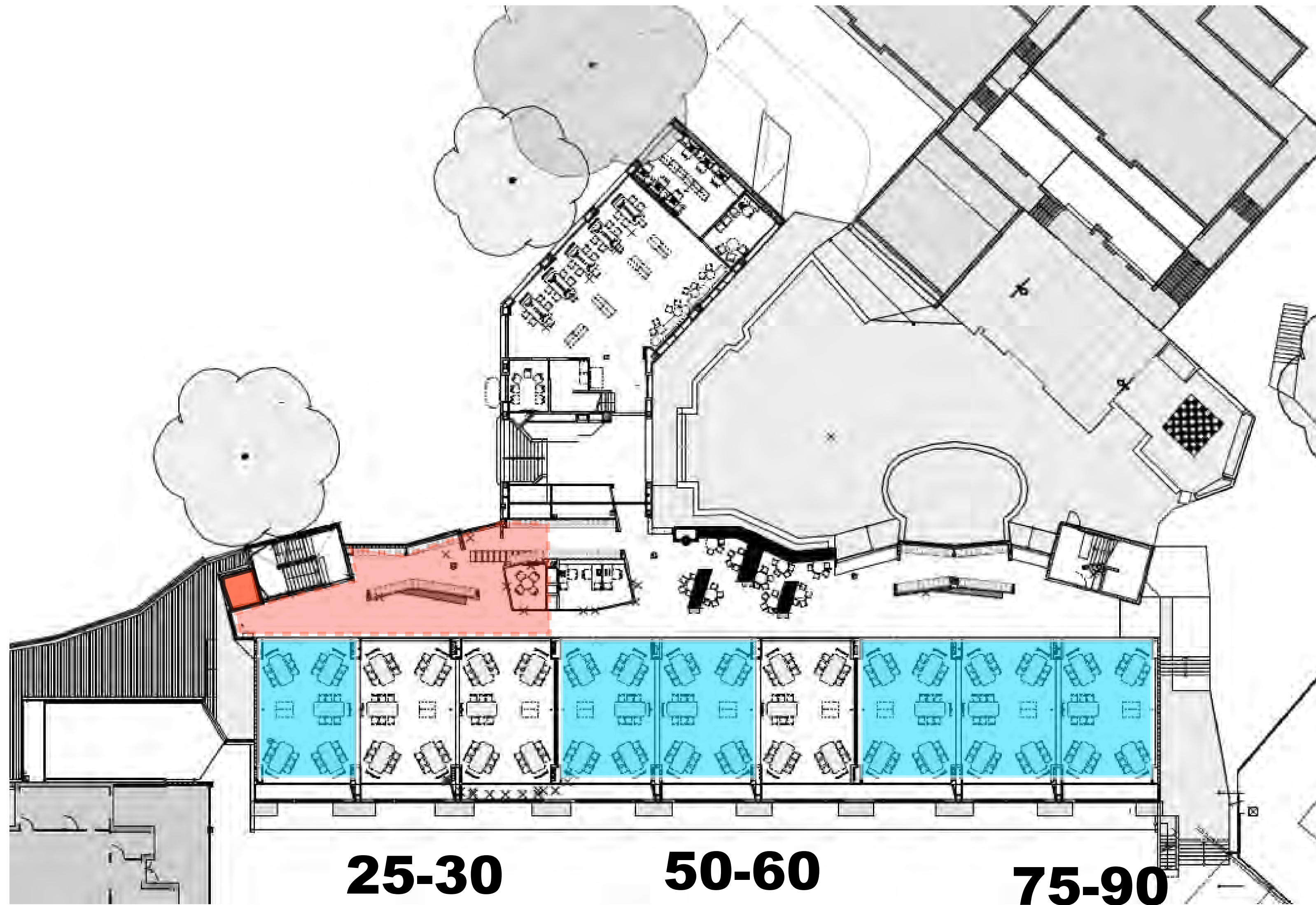
Brisbane Boys College





## Highly flexible space for highly flexible pedagogy

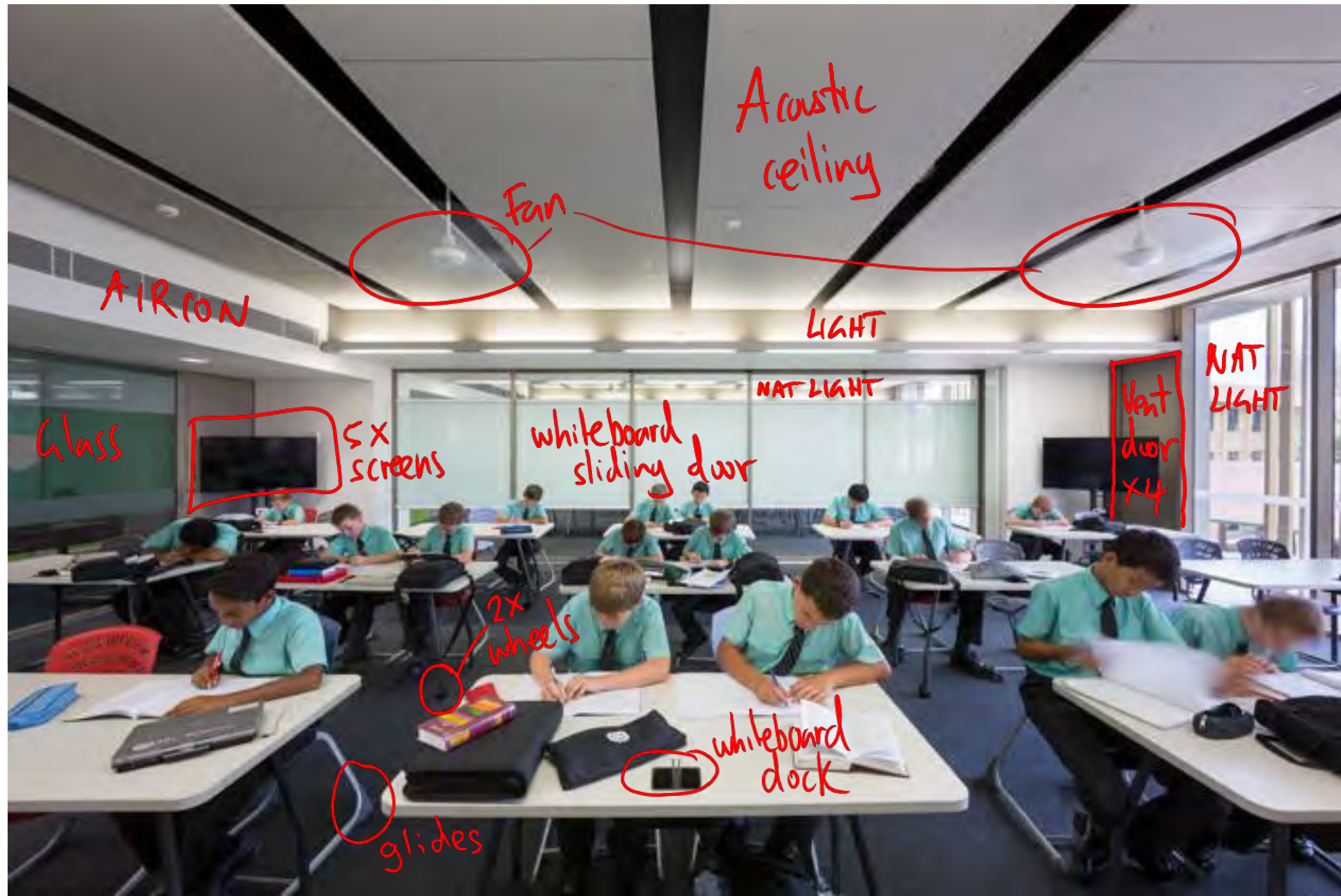
Brisbane Boys College







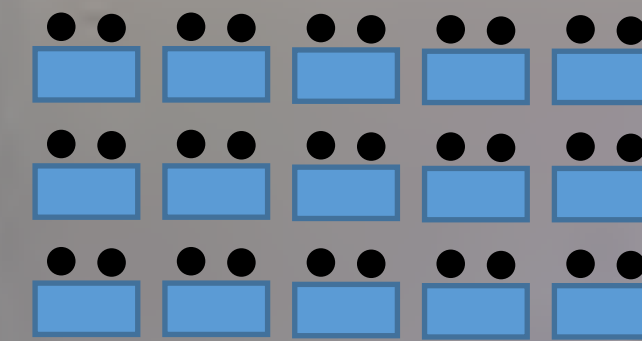






## Highly flexible space for highly flexible pedagogy

Brisbane Boys College









Highly flexible space for highly flexible pedagogy

Brisbane Boys College





## Highly flexible space for highly flexible pedagogy

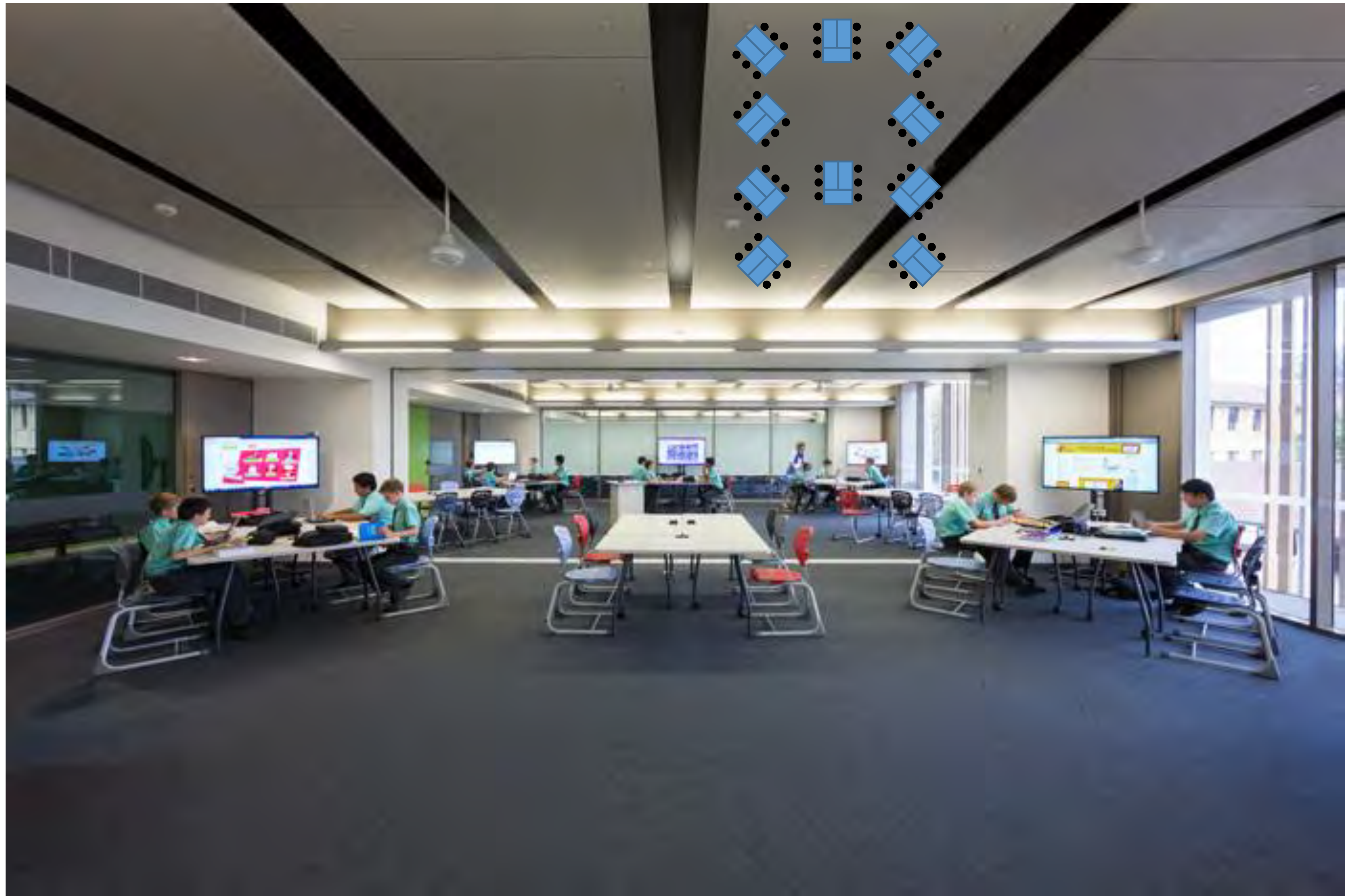
Brisbane Boys College





## Highly flexible space for highly flexible pedagogy

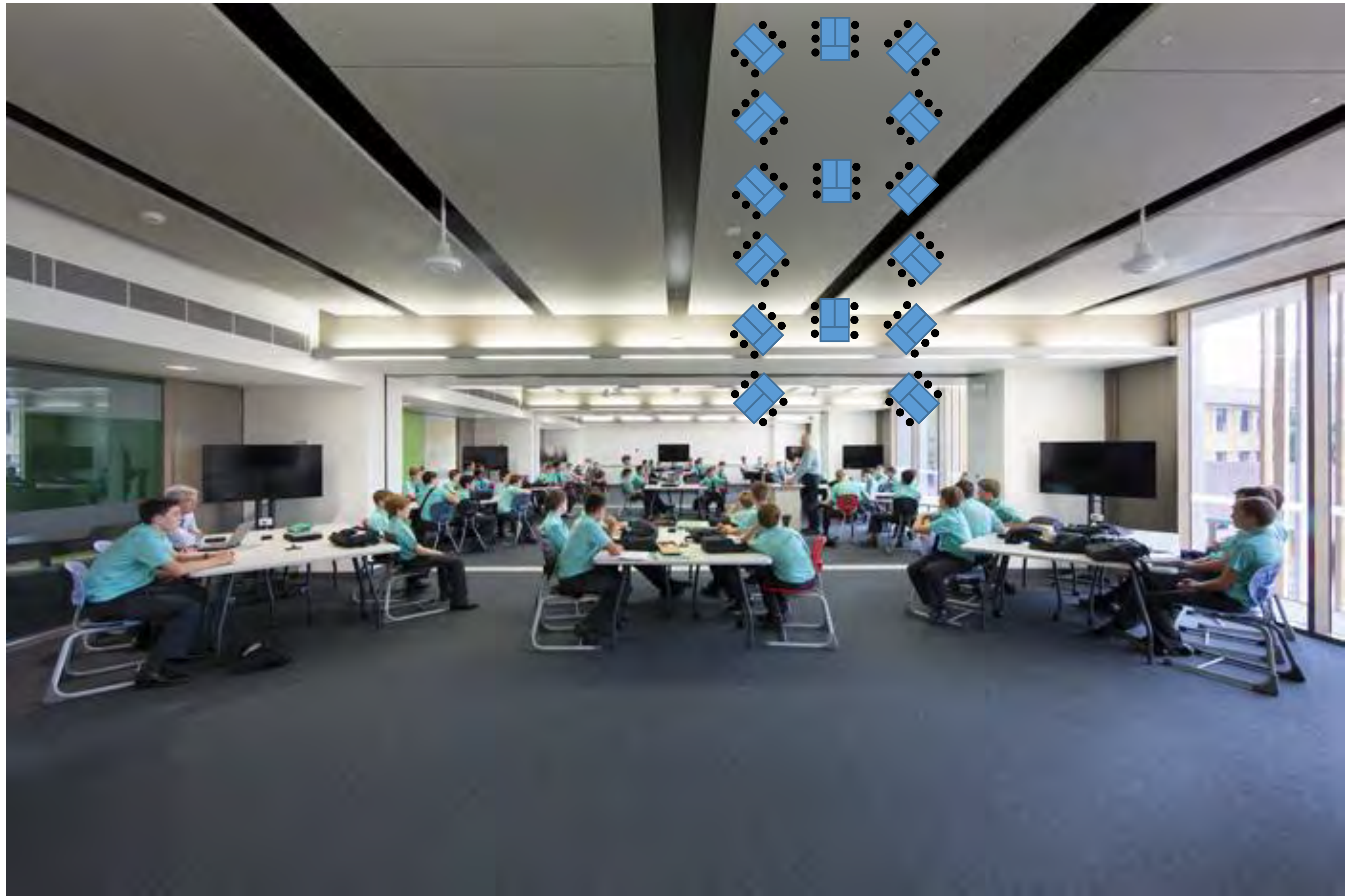
Brisbane Boys College





## Highly flexible space for highly flexible pedagogy

Brisbane Boys College







Student directed spaces



# Student Directed Spaces

UQ  
Ipswich Campus - 2002





# Student Directed Spaces

UQ  
Ipswich Campus - 2002







UQ  
Ipswich Campus - 2002





UQ  
Ipswich Campus - 2002



# Student Directed Spaces

Multimedia Learning Centre  
Bond University - 2009







Multimedia Learning Centre  
Bond University - 2009





Multimedia Learning Centre  
Bond University - 2009





Multimedia Learning Centre  
Bond University - 2009





Multimedia Learning Centre  
Bond University - 2009



## SPACE 1

What were you doing before visiting the MLC today?

Lecture Tutorial Library Consultation with lecturer  
Socialising Other \_\_\_\_\_

What area have you been using?

Please circle on the floor plan below.

Reason for selecting space:

Only space available Occupied by friends Works for group  
Appropriate Technology Preference for position Other \_\_\_\_\_

What activity were you participating in?

Meeting Friends Doing Assignment Other \_\_\_\_\_

What stage of the assignment are you up to?

Beginning Middle End

How many people were you working/meeting with?

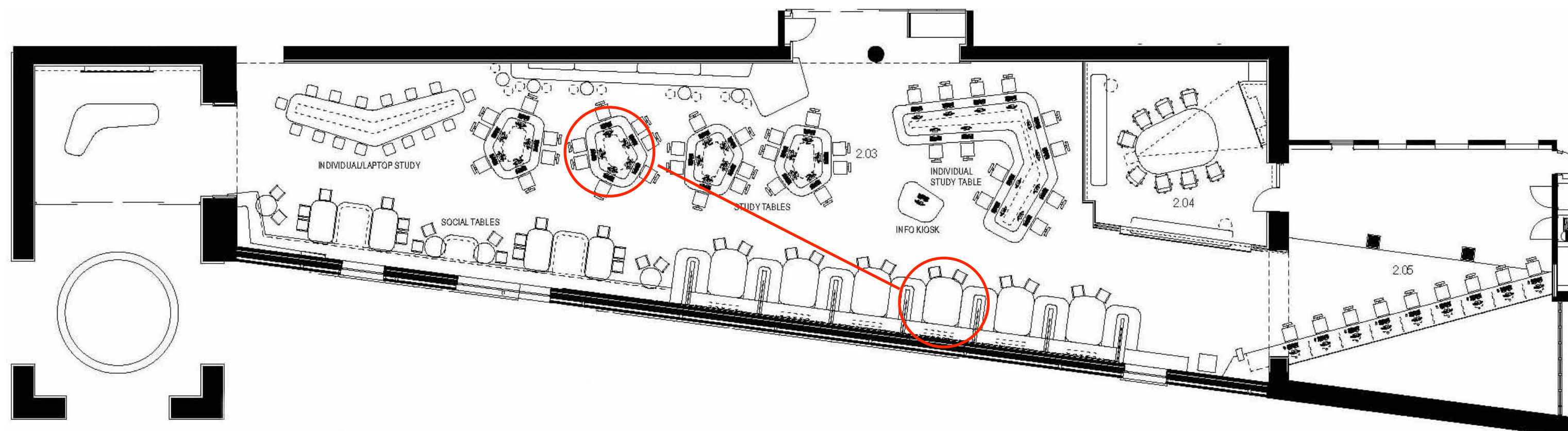
None One Two Three Four Five Six More \_\_\_\_\_

What technology were you using?

None Laptop PC Document camera DVD Gaming  
Webcam Interactive white board Other \_\_\_\_\_

What are you going to do after this visit to the MLC today?

Lecture Tutorial Library Consultation with lecturer  
Socialising Other \_\_\_\_\_



# Multimedia Learning Centre

## Bond University - 2009 Survey



1.	<b>Laptop Bar</b>
Pedagogy	Social learning drop in casual
Space	To support a cohort of approx 2-4. Close to entry, drink dispenser. Short term study at a work level which looks over other study spaces. Enables a degree of behavior for the voyeur and exhibitionist. The colour of the bar changes to reflect potential different learning moods.
Technology	Power for laptops and wireless LAN
2	<b>Lounge seating</b>
Pedagogy	Social learning, flexible furniture to support group work with laptop and paper based material.
Space	To support cohorts of 4-8. Comfortable casual furniture for longer study sessions. More focussed introvert behavior.
Technology	Power for laptops and wireless LAN
3	<b>Study Booths</b>
Pedagogy	Open collaborative learning
Space	Booths for a cohort of 4-6. Comfortable casual furniture for longer study sessions. More focussed introvert behavior with the study practice on display for others to engage. Encourages the extrovert and voyeur. Power for laptops and wireless LAN
Technology	A 40inch LCD screen with networked computer connected with a document camera to capture print material. Laptops can be connected to screen. Able to play DVD movies and games on playstation,
4	<b>Open Computer tables</b>
Pedagogy	Reflective 70%, collaborative 30% modes of study
Space	Open study workstations to support one to two students at each computer. The colour of the bar changes to reflect potential different learning moods.
Technology	Computer workstations and wireless LAN
5	<b>Computer stations with a view</b>
Pedagogy	Reflective modes of study
Space	Students working with back to open space facing landscape view of lake and environs. Introvert behavior for one to two students to enable more focussed work.
Technology	Computer workstations and wireless LAN
6	<b>Collaborative learning Room</b>
Pedagogy	Collaborative learning space enclosed for quiet focused work.
Space	Desk supports a cohort of six with room for an additional 10 along bench seating to its edge. Extensive use of glass enables passive engagement with rooms activity.
Technology	Support for laptop, Smartboard, HD projector, and videoconferencing, Gaming hardware and software for Computer Games and Multimedia students. (XBox, Playstation, Nintendo Wii)



# Peer to Peer Learning Spaces



# First Year Engineering Learning Centre - 2006





# First Year Engineering Learning Centre - 2006





Integrated teacher-led & student directed spaces



Lilley Centre  
Brisbane Grammar School  
Completed in 2009





Lilley Centre  
Brisbane Grammar School  
Completed in 2009





# Lilley Centre

Brisbane Grammar School

Completed in 2009







Lilley Centre  
Brisbane Grammar School  
Completed in 2009





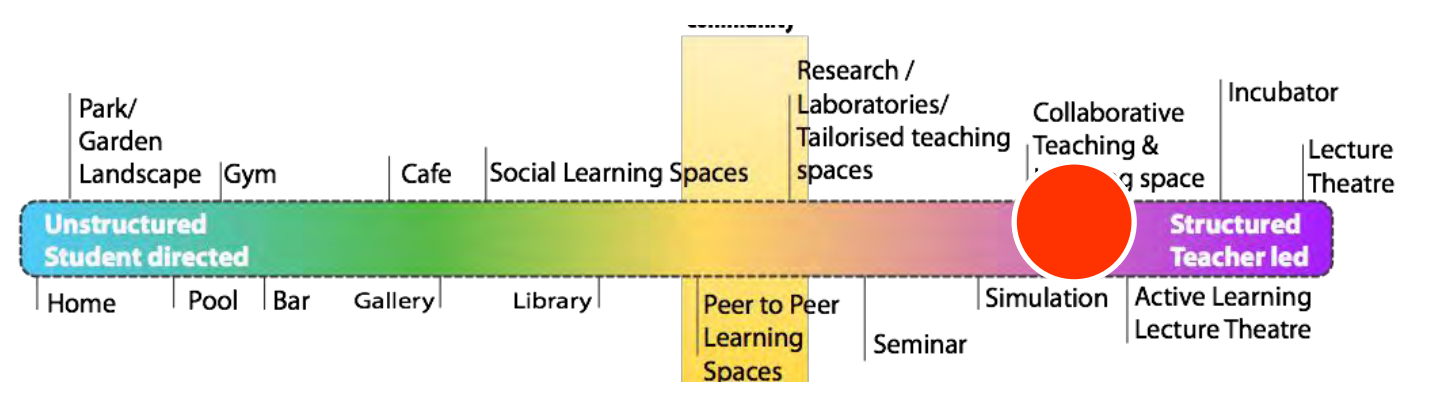
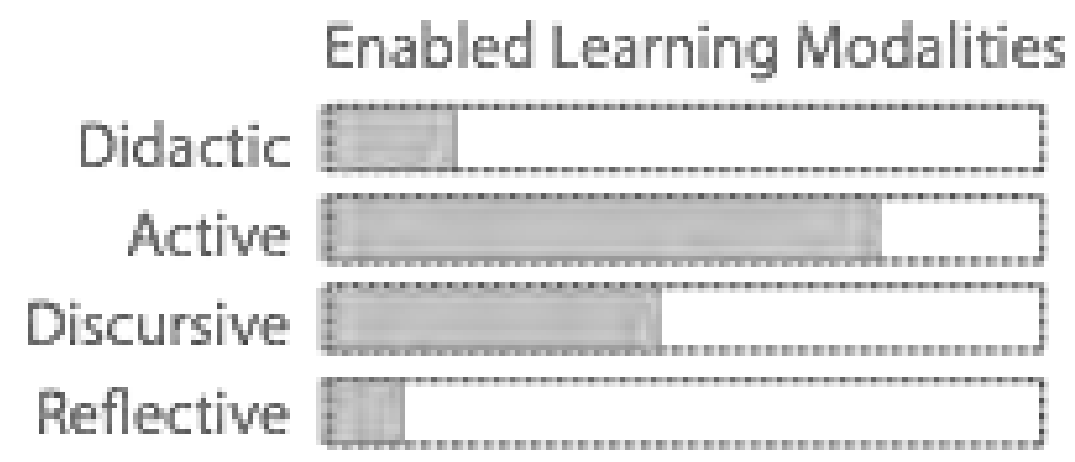
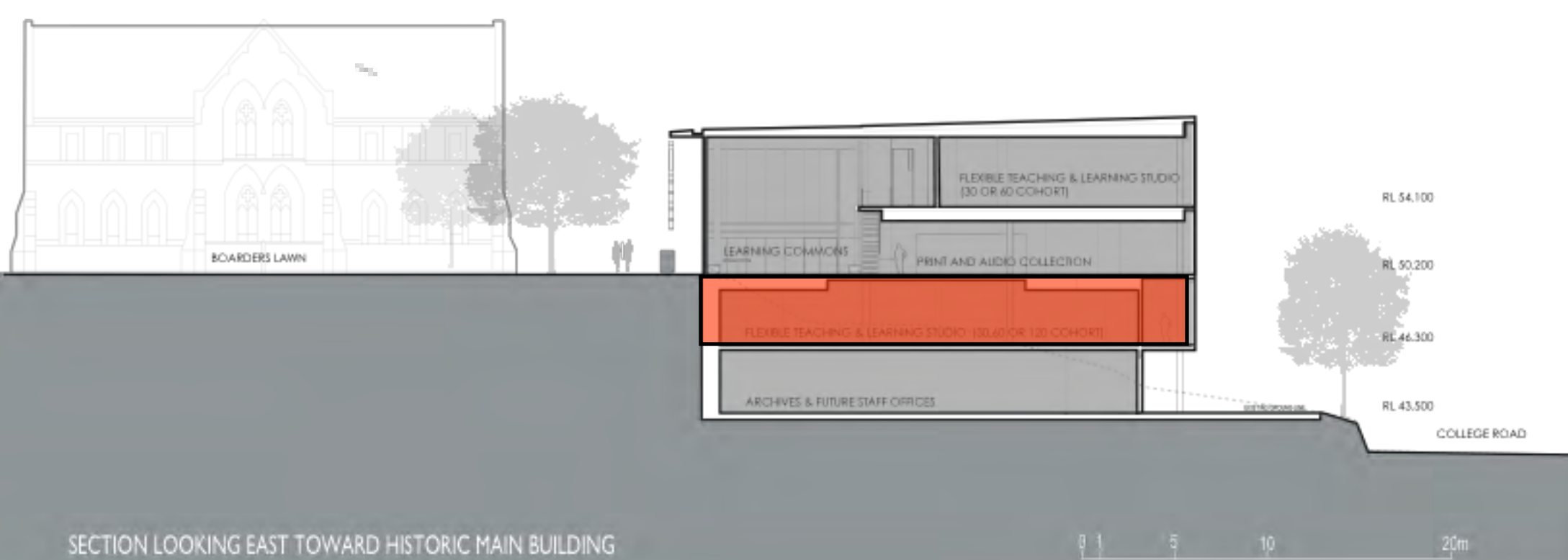
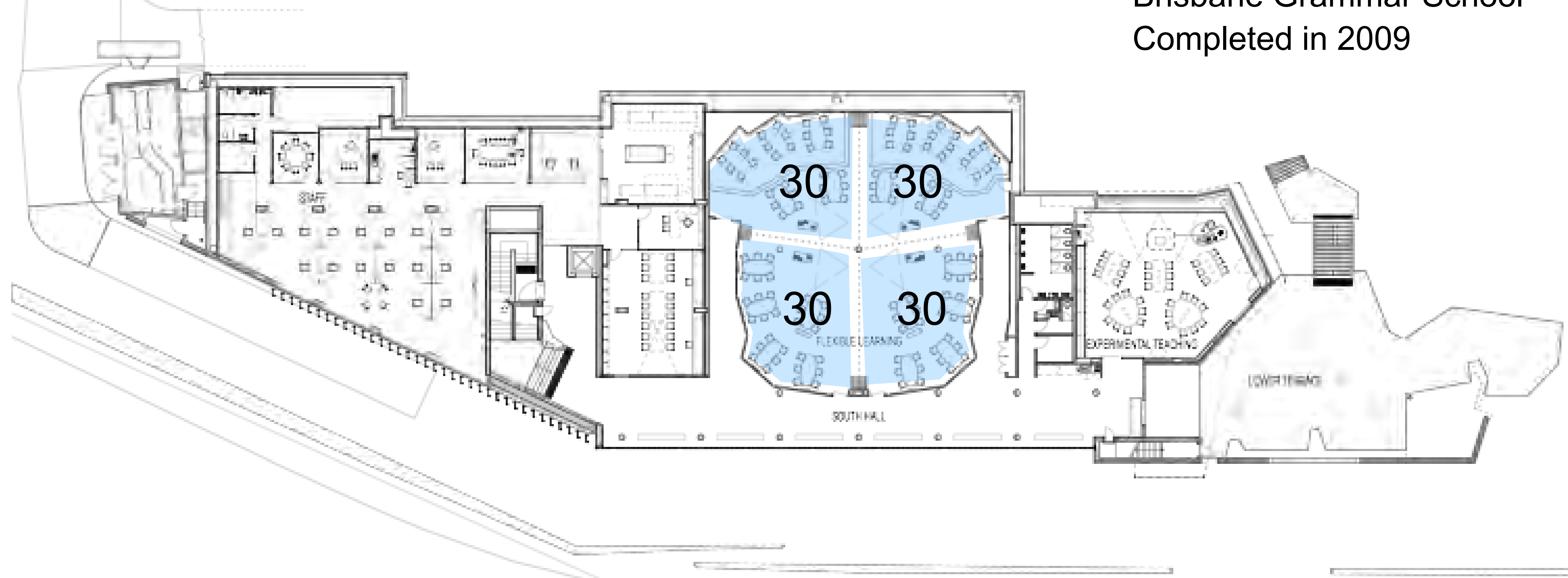


Lilley Centre  
Brisbane Grammar School  
Completed in 2009



# Cohort size - Teacher-Led Spaces

Lilley Centre  
Brisbane Grammar School  
Completed in 2009

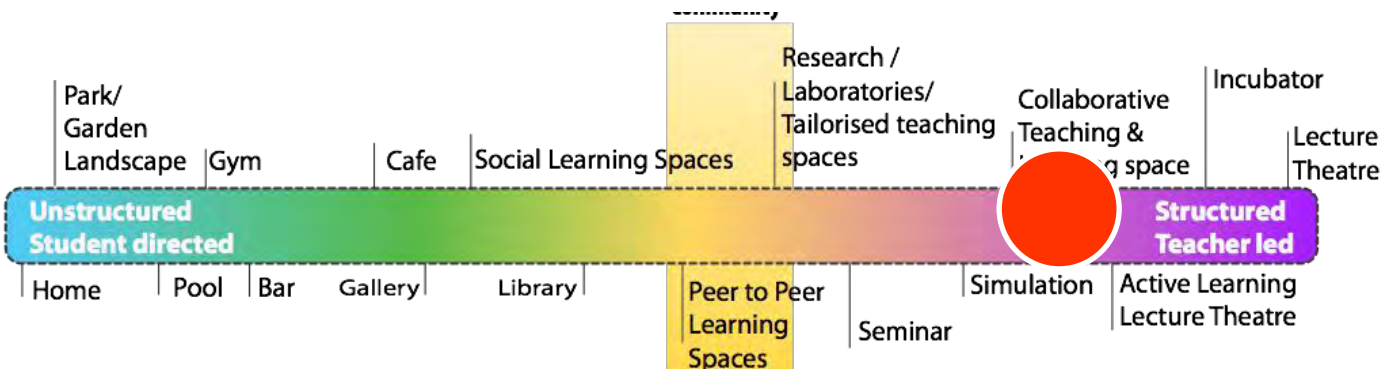
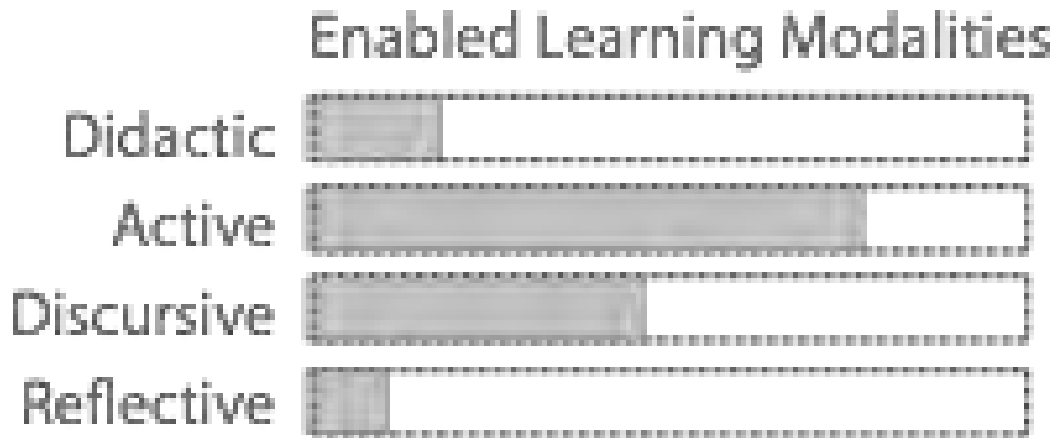
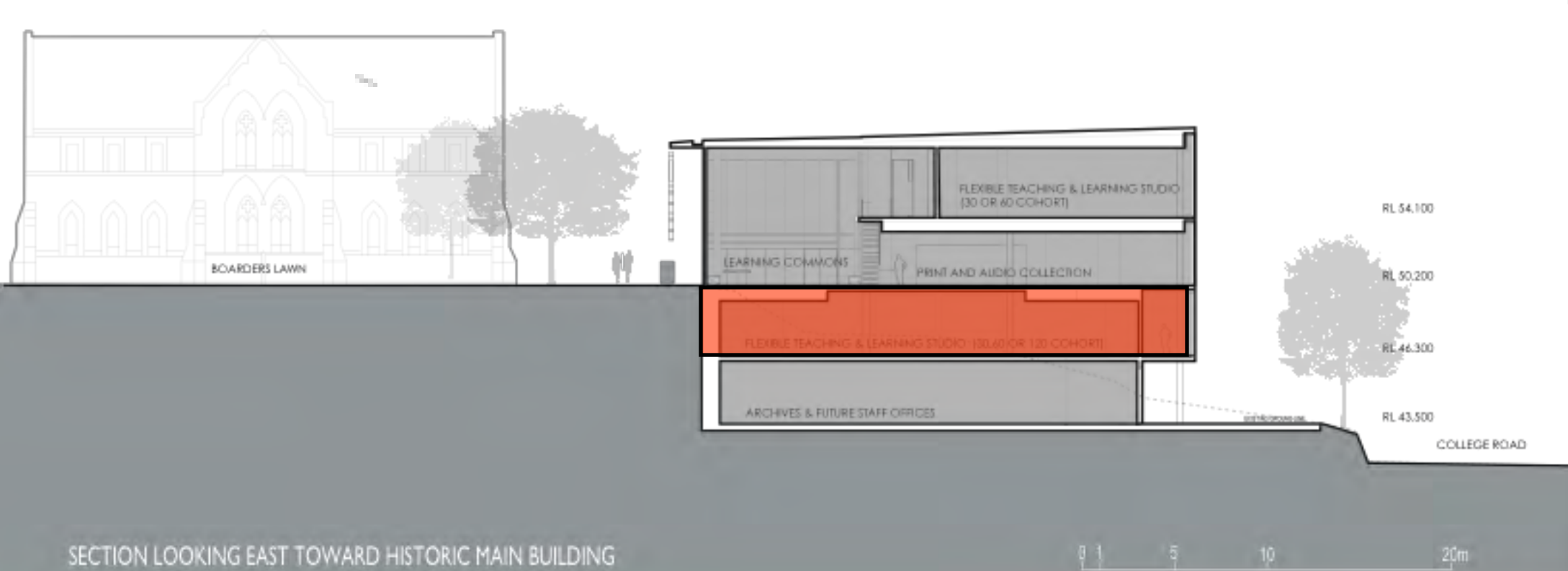
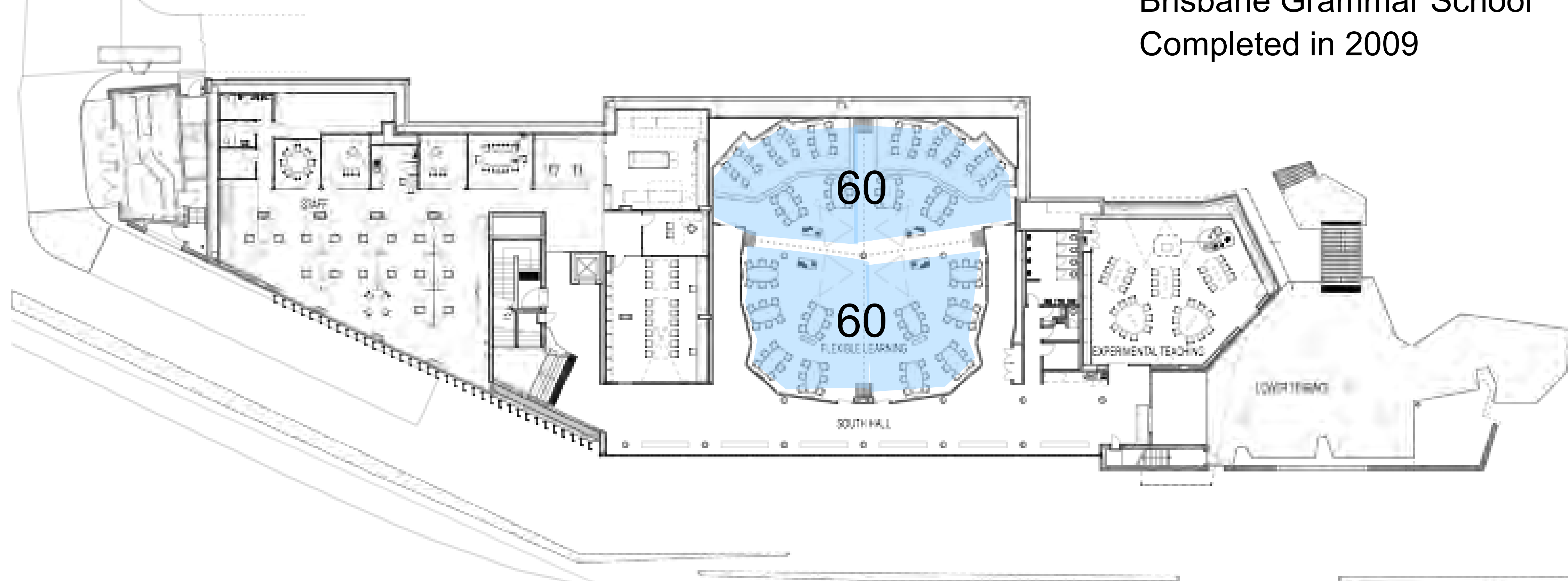


SECTION LOOKING EAST TOWARD HISTORIC MAIN BUILDING



# Cohort size - Teacher-Led Spaces

Lilley Centre  
Brisbane Grammar School  
Completed in 2009

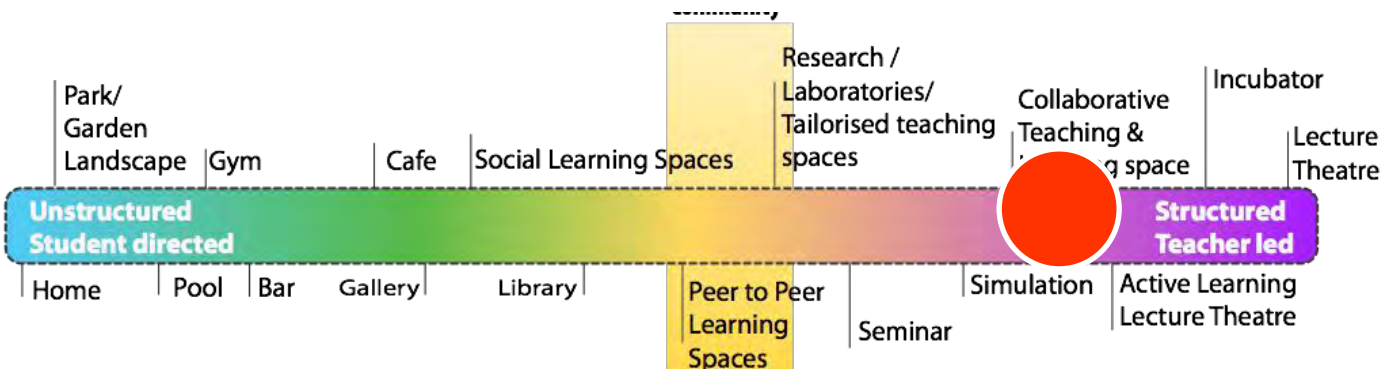
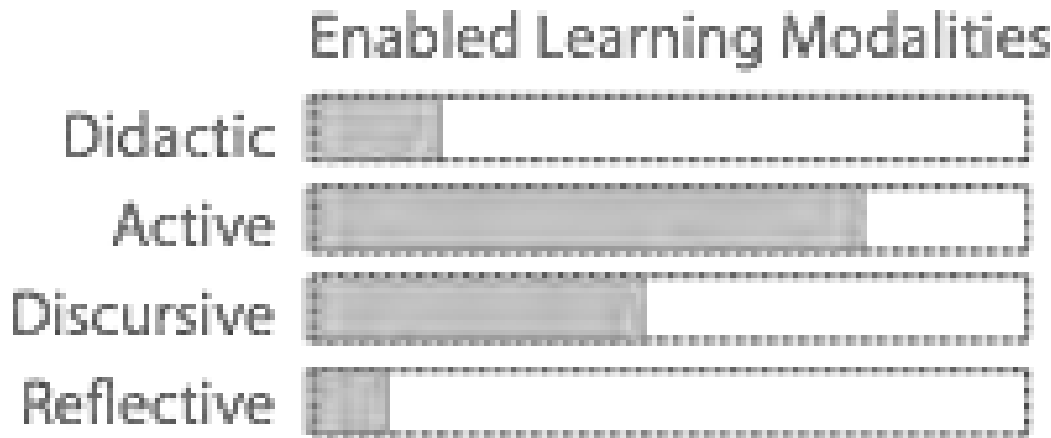
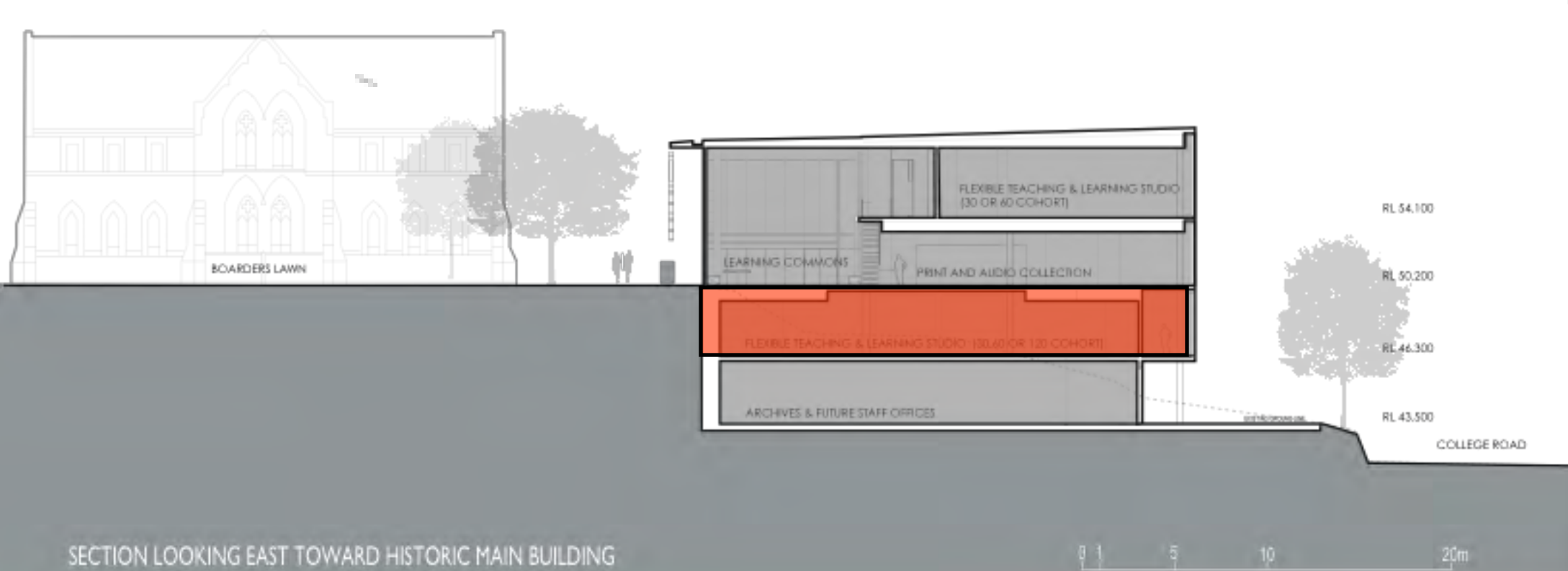
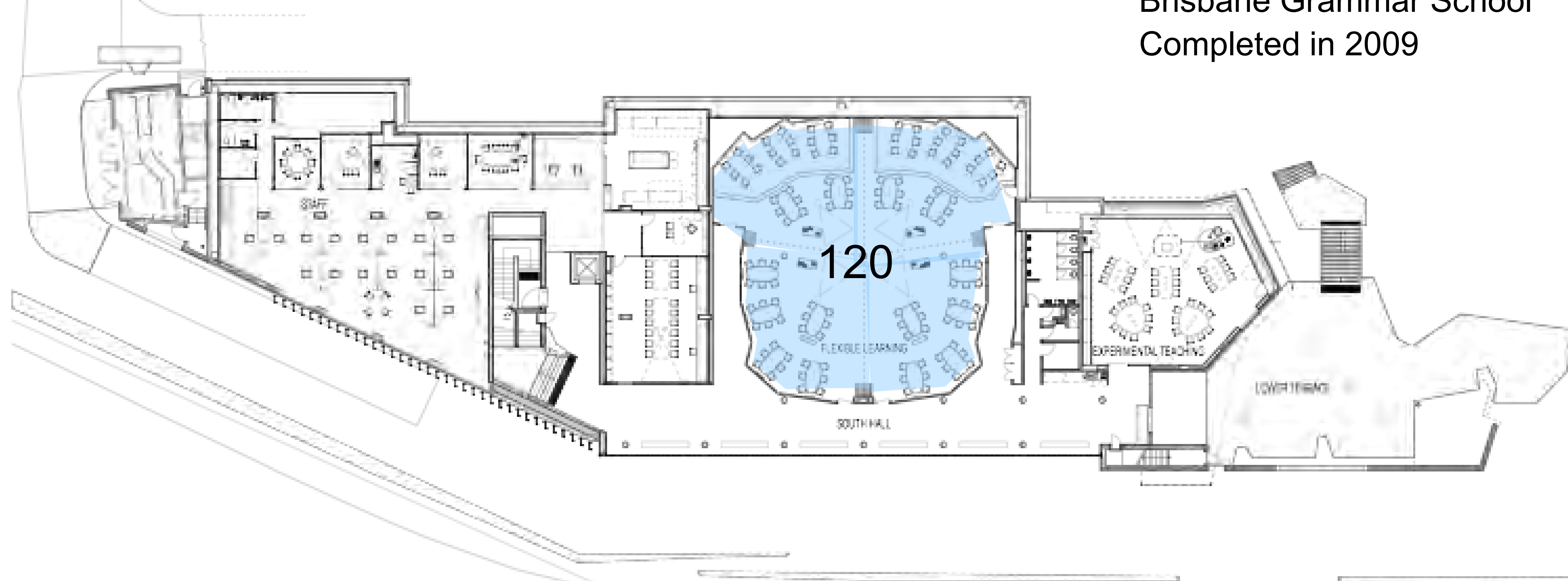


SECTION LOOKING EAST TOWARD HISTORIC MAIN BUILDING



# Cohort size - Teacher-Led Spaces

Lilley Centre  
Brisbane Grammar School  
Completed in 2009





## Student Directed Spaces



Lilley Centre  
Brisbane Grammar School  
Completed in 2009

## Teacher-Led Spaces





# Science Engineering Centre QUT - 2012







Science Engineering Centre QUT - 2012





Science Engineering Centre QUT - 2012



# Jeffrey Smart Building - UniSA





# Jeffrey Smart Building - UniSA





# Jeffrey Smart Building - UniSA





# Jeffrey Smart Building - UniSA





# LIBRARY MASTERPLAN: KIT OF PARTS

## CASUAL LEARNING

LOUNGE



FOOD + STUDY



STANDUP PC



## GROUP TEACHING

COLLABORATIVE  
TEACHING SPACE



TRAINING ROOM



## GROUP LEARNING

OPEN STUDY



OPEN STUDY + PC



OPEN STUDY (2 PERSONS + PC)



STUDY ROOM

## INDIVIDUAL LEARNING

INDIVIDUAL + PC



INDIVIDUAL



## RESOURCES/SUPPORT

COLLECTION



SERVICE POINT



UTILITY



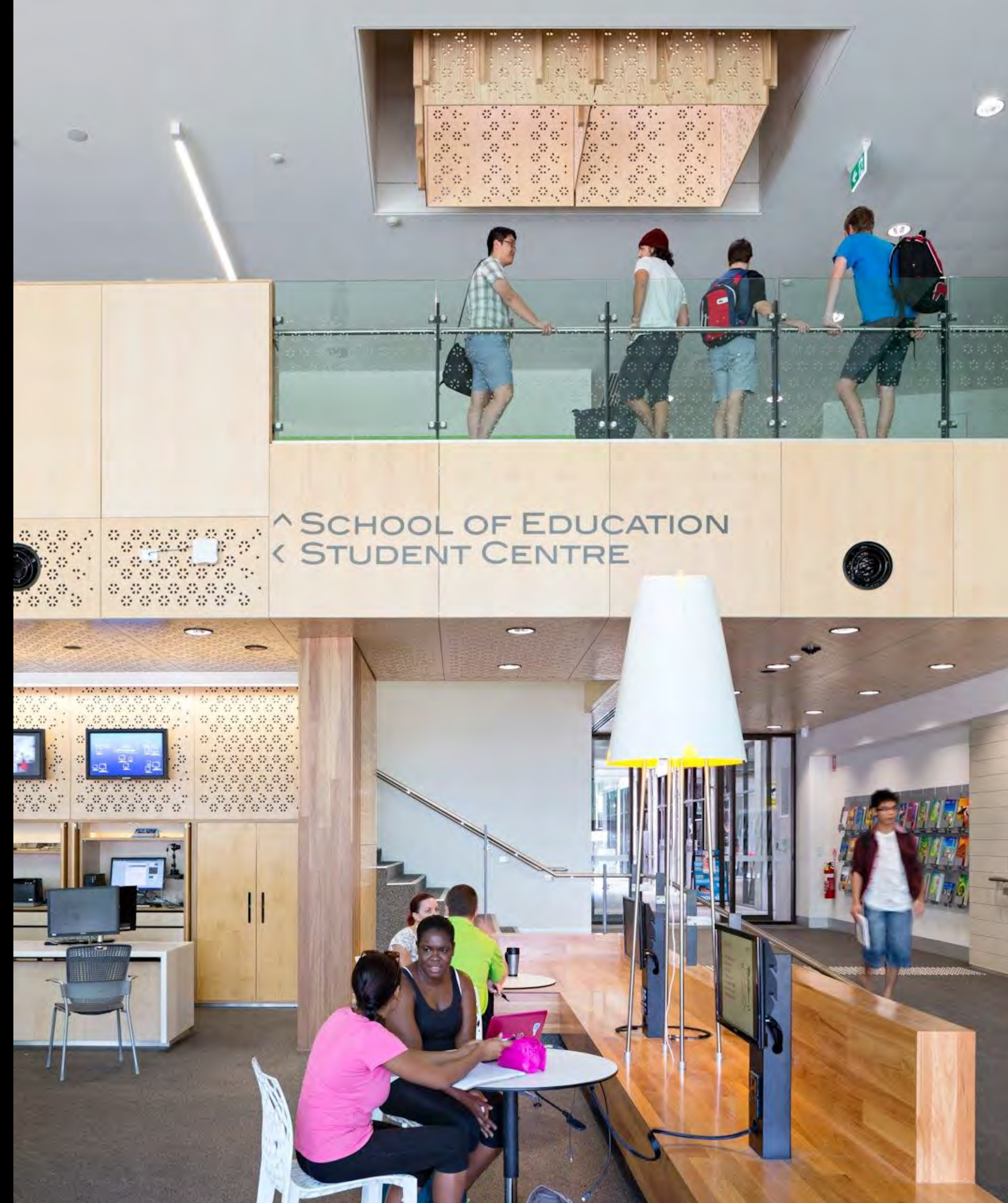
## STAFF

- CAMPUS
- ADMINISTRATION
- CENTRAL
- ISTS
- SASILTU



Integrated teacher-led & student  
directed spaces

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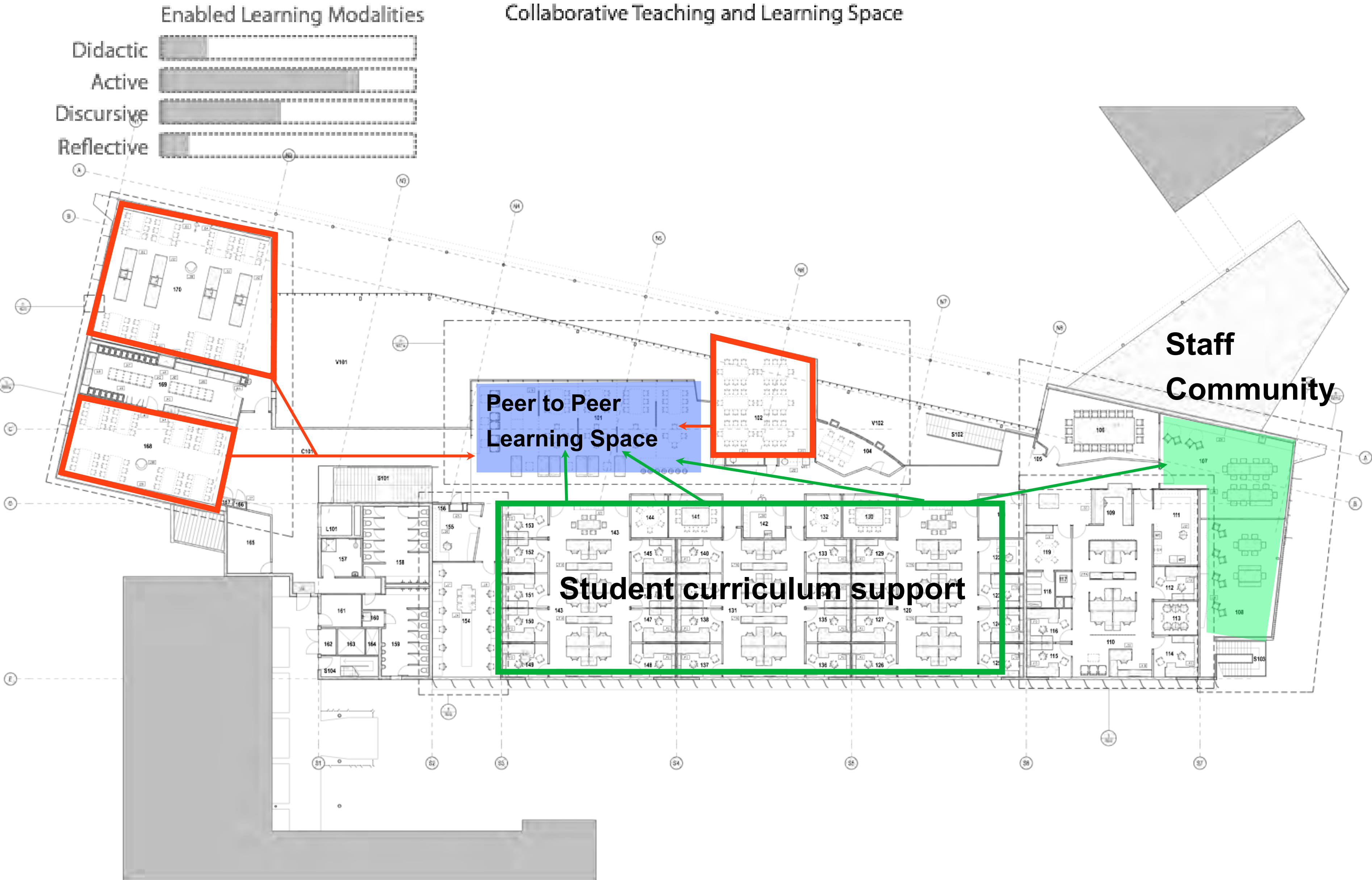




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JCU Faculty of Education







Reflection on your performance

- Where are you at?
  - Are you understanding and assessing a resource you can apply with?
- Where do you want to be?
  - Are you doing right?
- What changes do you need to make?
  - Study schedule, approach learning
- What help do you need?
  - Do you know where to go/when?
- Set goals within a specified timeframe

1120  
Celebrate. Remember. Fight Back.  
relayforlife.org.au

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# Integrated teacher-led & student directed spaces



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# St Andrew's College - Perigian

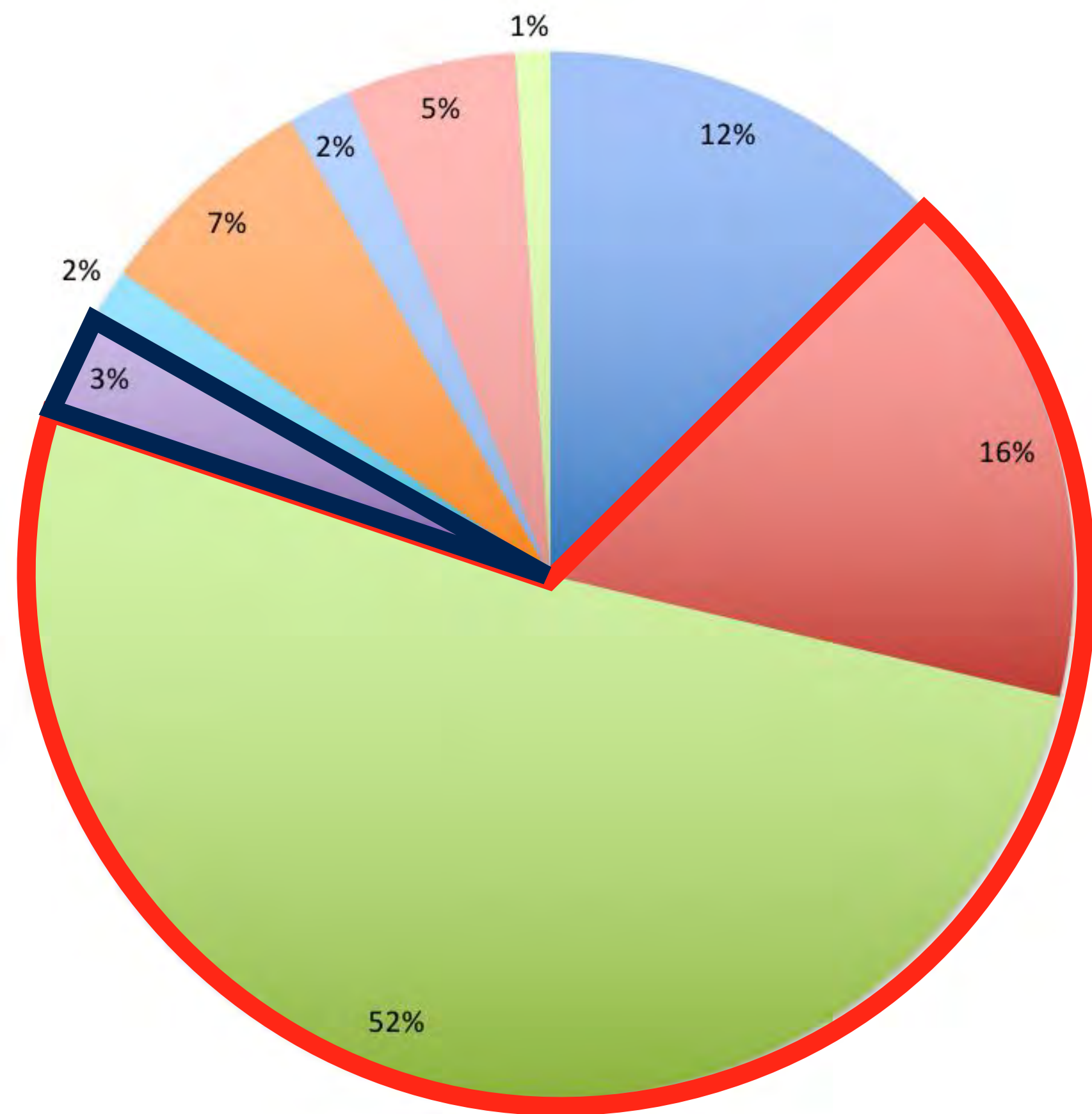


Integrated teacher-led & student directed spaces



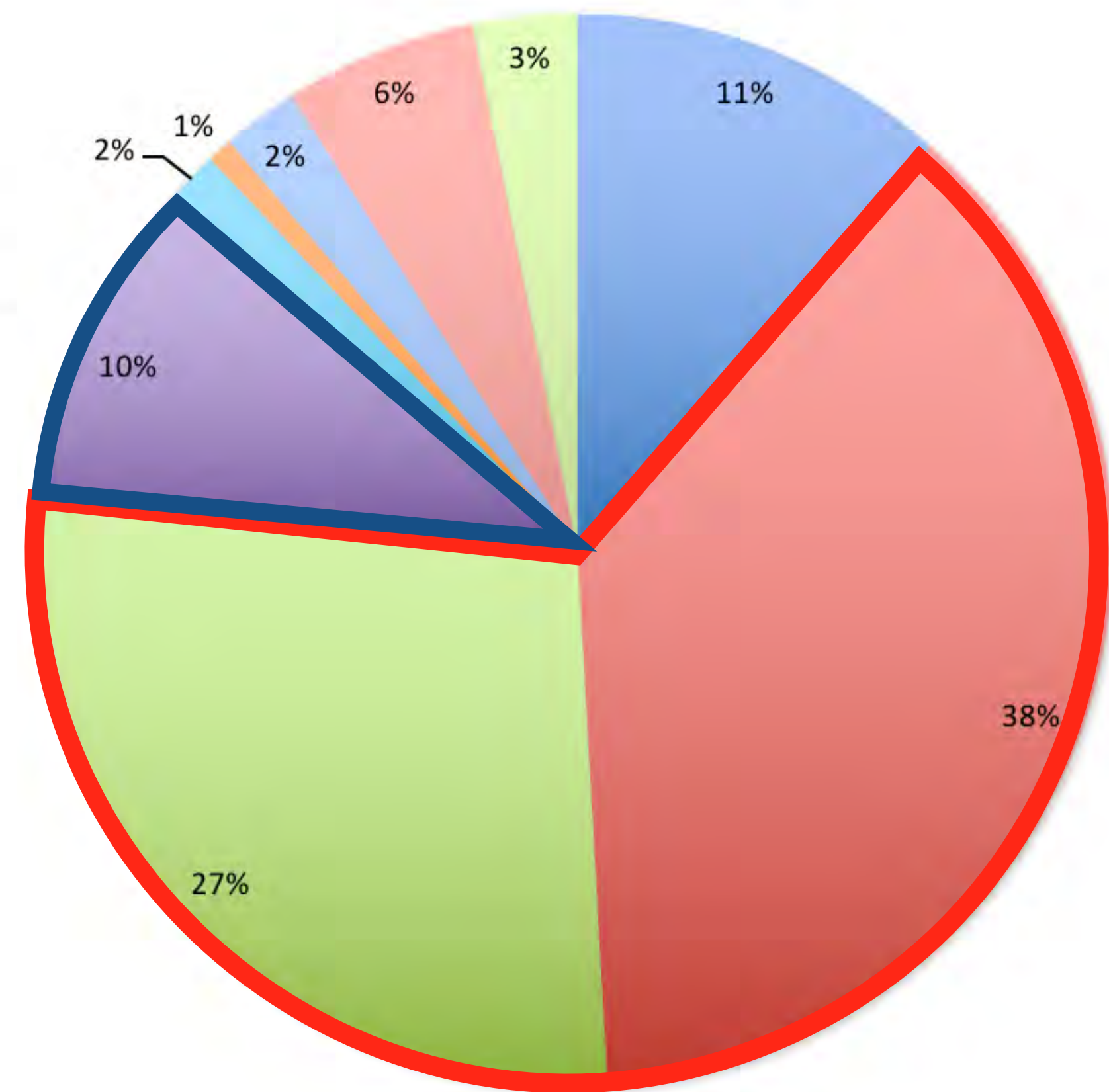
# St Andrew's College - Perigian

XXXXXXXX  
% Spatial Usage



- ADMINISTRATION
- GPLA
- SPECIALIST LEARNING
- STUDENT DIRECTED LEARNING
- KITCHEN / AMENITIES
- MAINTENANCE & SERVICE
- OTHER
- STORAGE
- STUDENT TOILETS

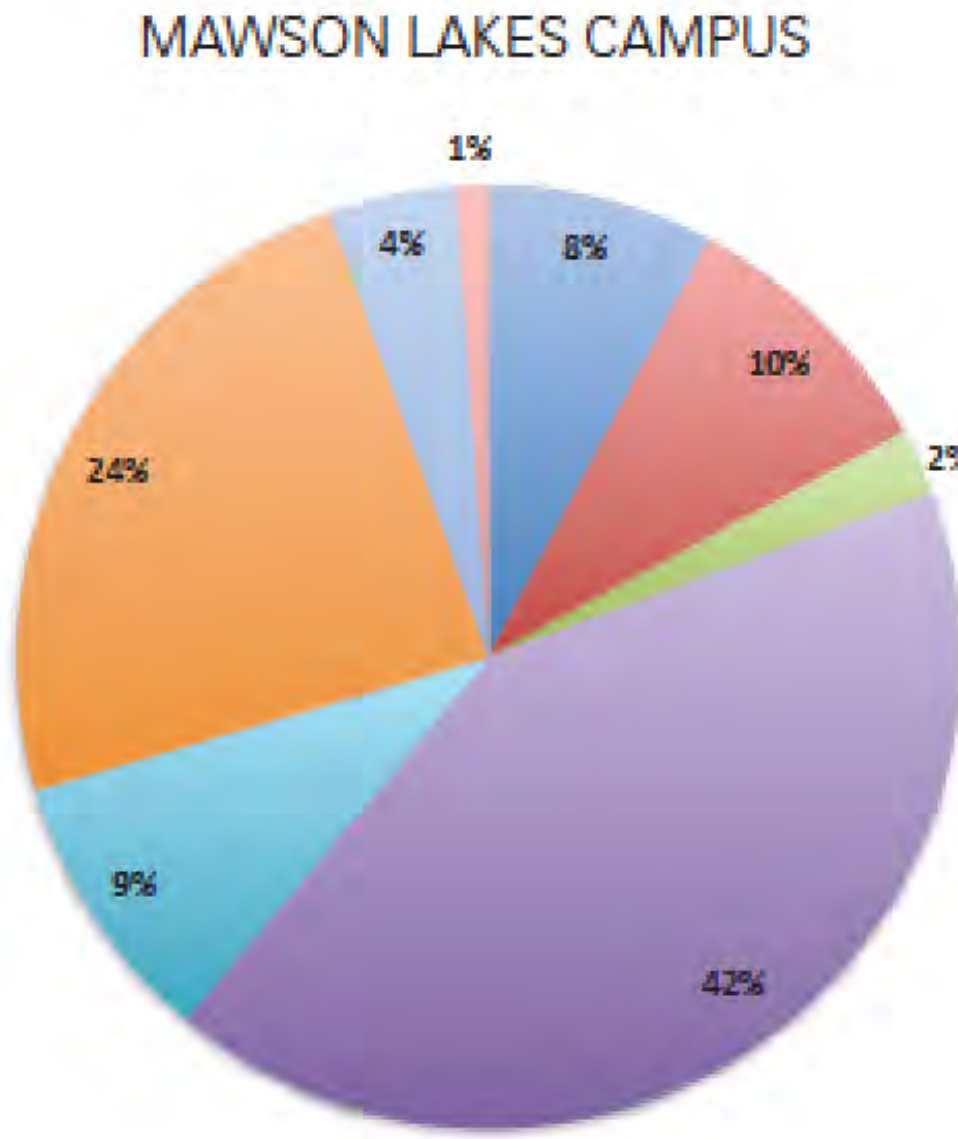
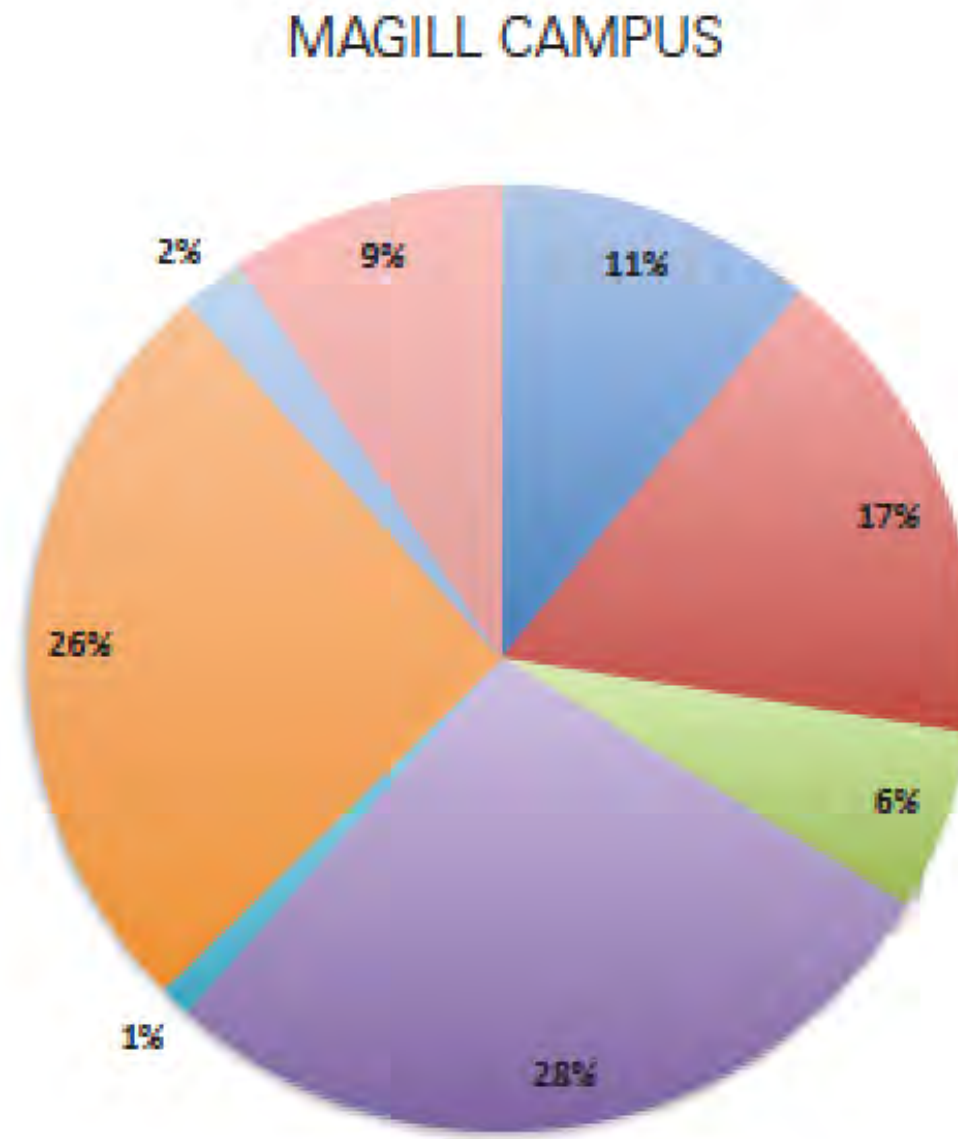
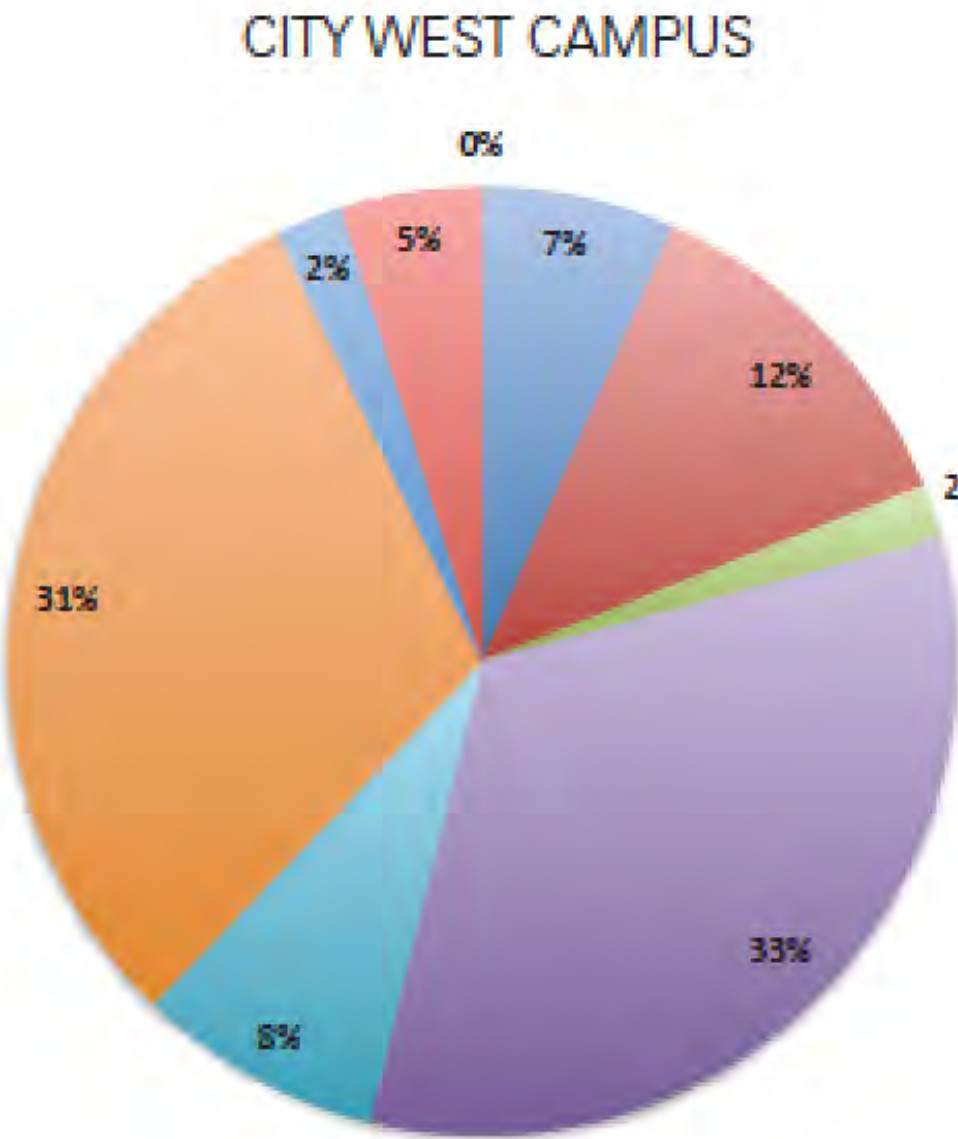
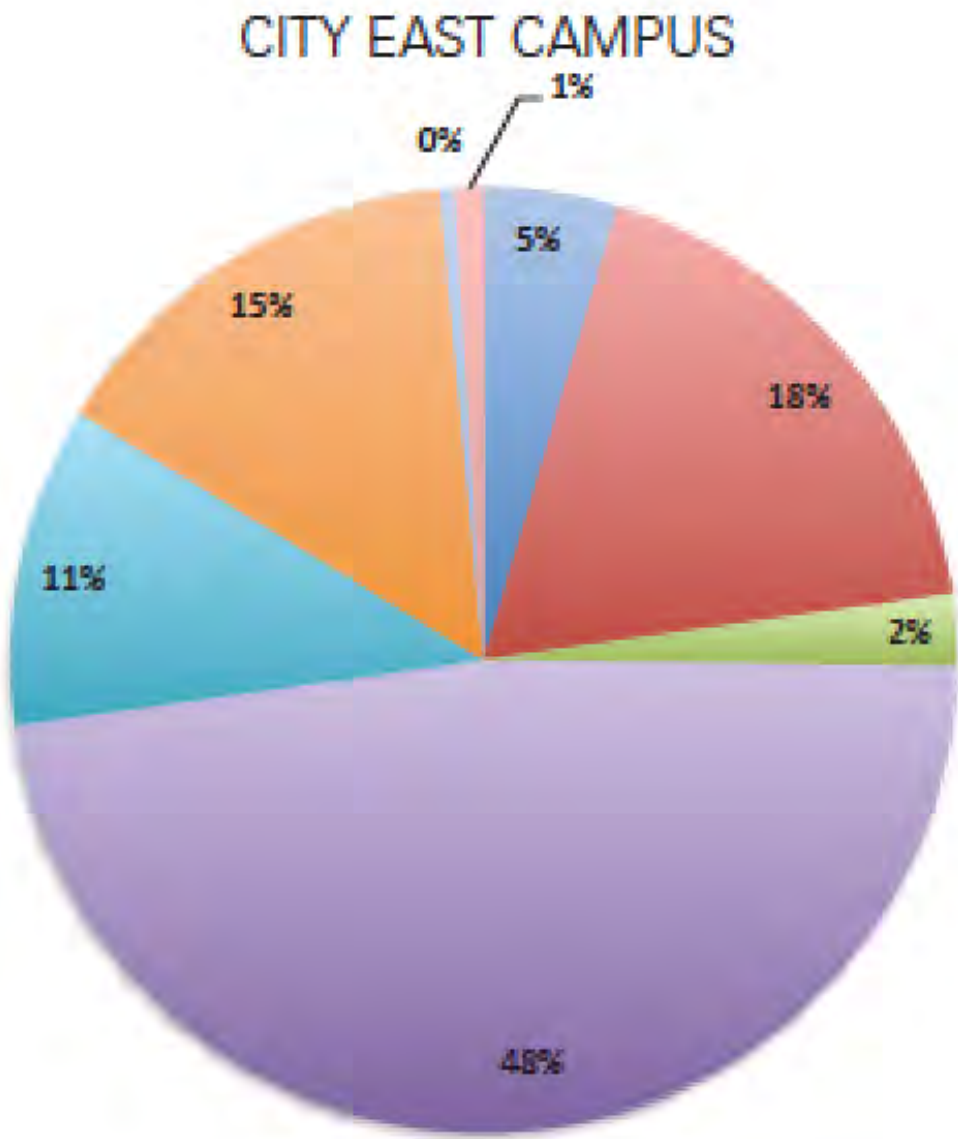
St Andrew's Anglican College  
% Spatial Usage





# Distribution of Student Directed Learning Spaces

## 1. Range and Distribution of Teaching Spaces



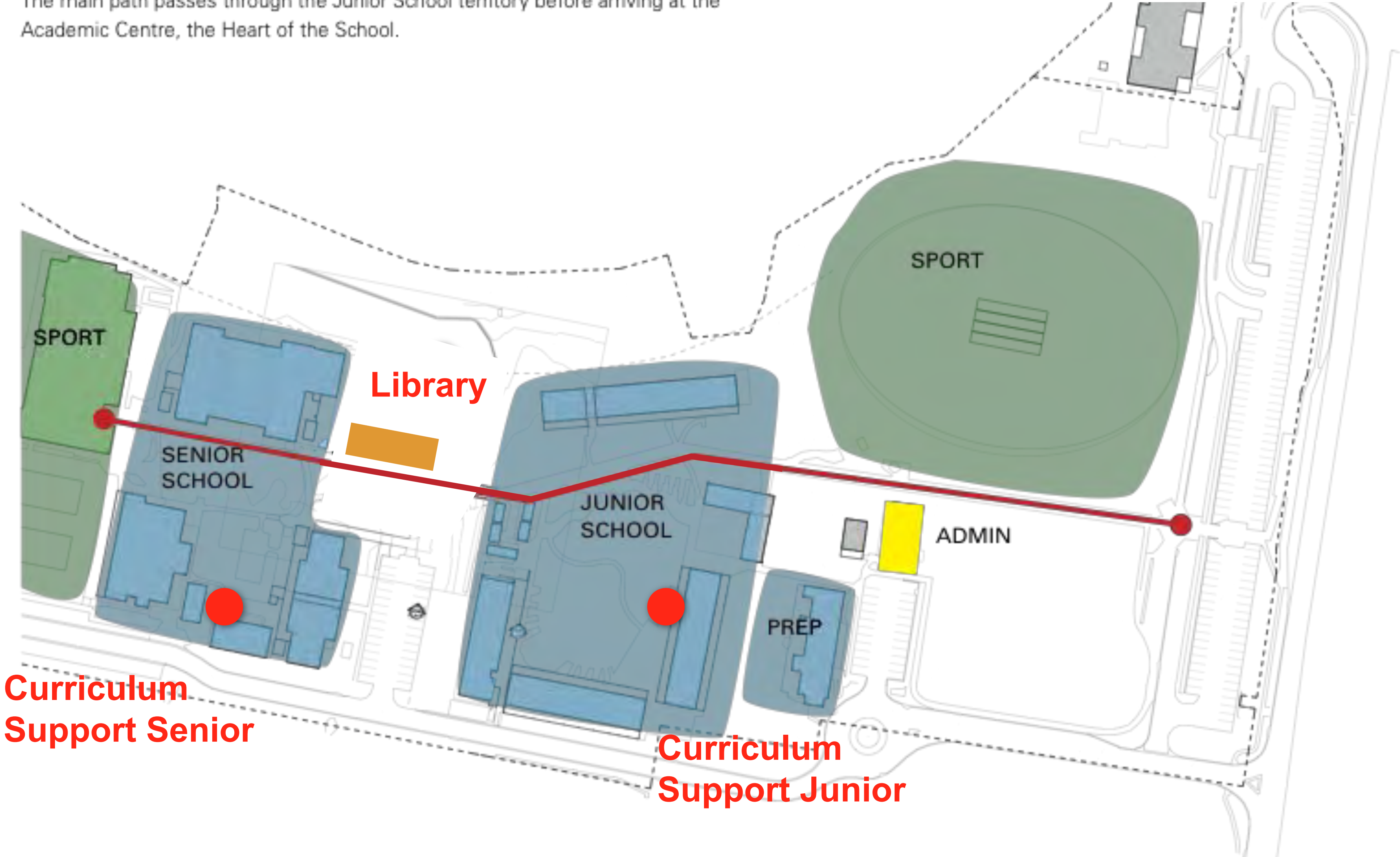
LEGEND

Lecture		Wet Lab	
Tutorial		Social Learning	
Computer Teaching		Peer to Peer	
Dry Lab		Computer	



# Development of the Masterplan

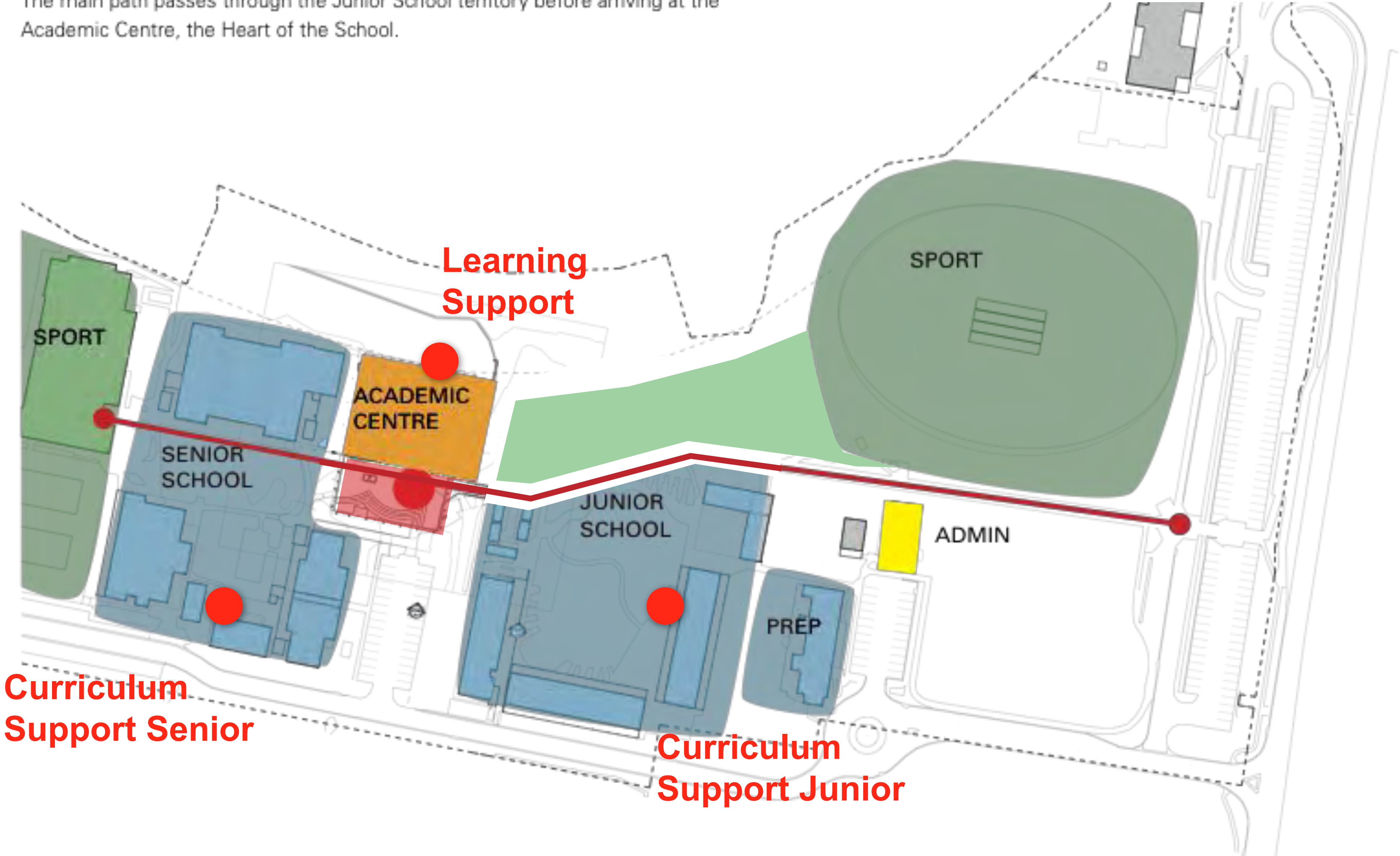
The main path passes through the Junior School territory before arriving at the Academic Centre, the Heart of the School.





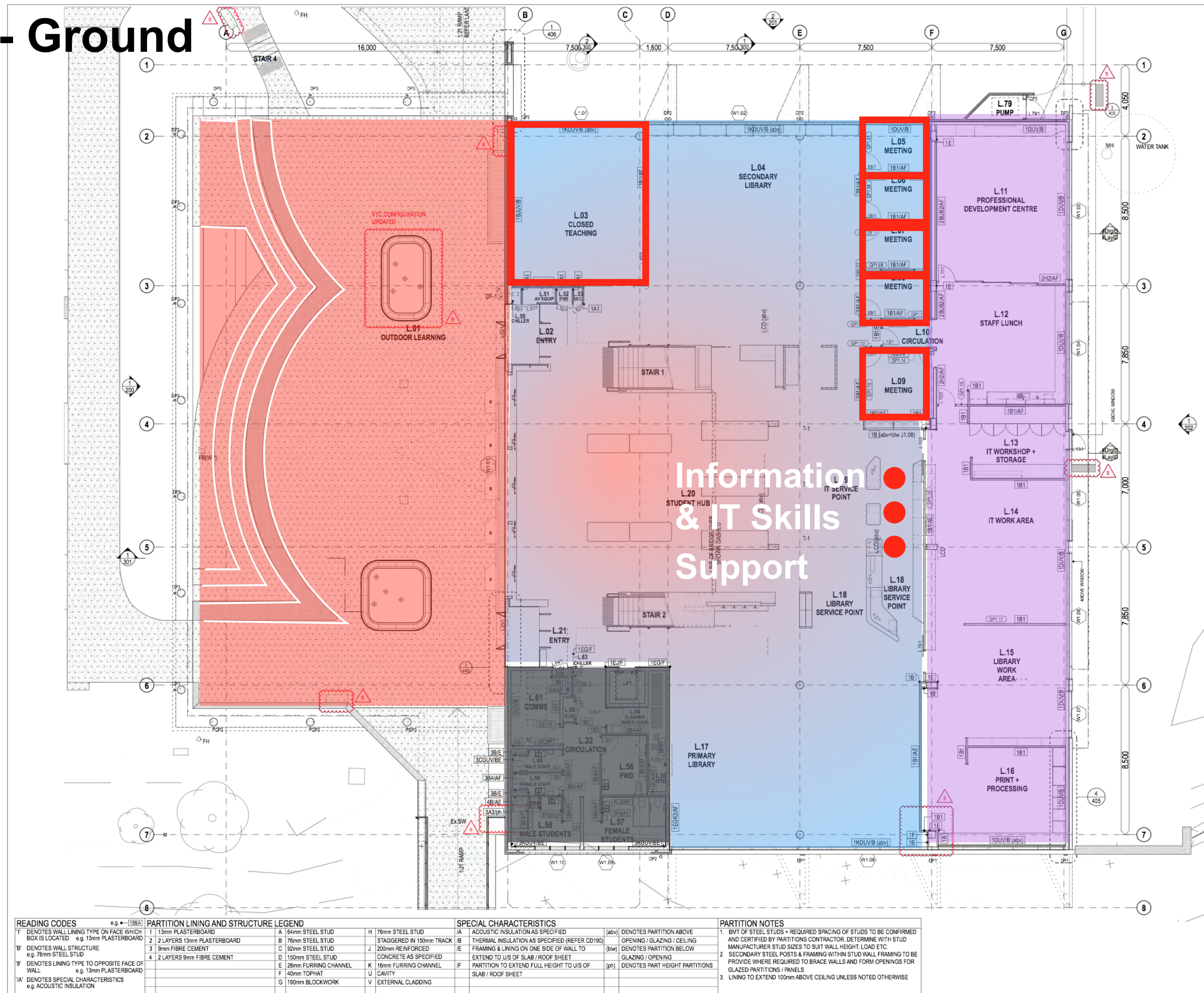
# Development of the Masterplan

The main path passes through the Junior School territory before arriving at the Academic Centre, the Heart of the School.





# Plans - Ground



## NOTES

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### PLAN LEGEND

AM#	ROOF ACCESS MAINTENANCE SAFETY SETUP & EQUIPMENTS LOCATIONS ARE INDICATIVE ONLY. REFER SPECIFICATION AND MATERIAL & PRODUCT SCHEDULE FOR DESIGN, SUPPLY, INSTALL & CERTIFY REQUIREMENTS
B	WASTE BINS, REFER LANDSCAPE
DP-F	DOWNPIPES TYPES, AS SCHEDULED
ED	ELECTRICAL DUCT, REFER ELECTRICAL
DCH	DISCHARGE COWL, REFER MECHANICAL
FB(WP)	FLOOR BOX, WATER RESISTANT IP RATED TYPE
FB-F	FLOOR BOX
FH	FIRE HYDRANT, REFER HYDRAULIC
GT-F	GUTTER TYPE AS SCHEDULED
LCD	LCD TELEVISION SCREEN
RF-F	ROOF TYPE AS SCHEDULED
VP	VENT PIPES, REFER HYDRAULIC
VTC	VERTICAL TRELLIS CABLES WITH VINES SUPPORT INTEGRATED WITH COLUMN, REFER DETAILS

PLAN NOTES
------------

1. CONTRACTOR TO PROVIDE NOGGINGS REQUIRED TO SUPPORT WALL MOUNT FIXTURES
2. PARTITION STRUCTURE INDICATED ABOVE GLAZING TO BE COORDINATED WITH CEILING BULKHEAD EXTENT. REFER CEILING DETAILS.

A	GMCC interim issue	10/03/2015	
B	GMCC issue	13/03/2015	PL
Rev	Revision Description	Date	Ver

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Client	
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**CONSTRUCTION & PROJECT  
MANAGEMENT (AUST) PTY LTD**

Project

ST ANDREW'S ACADEMIC  
CENTRE

Title	
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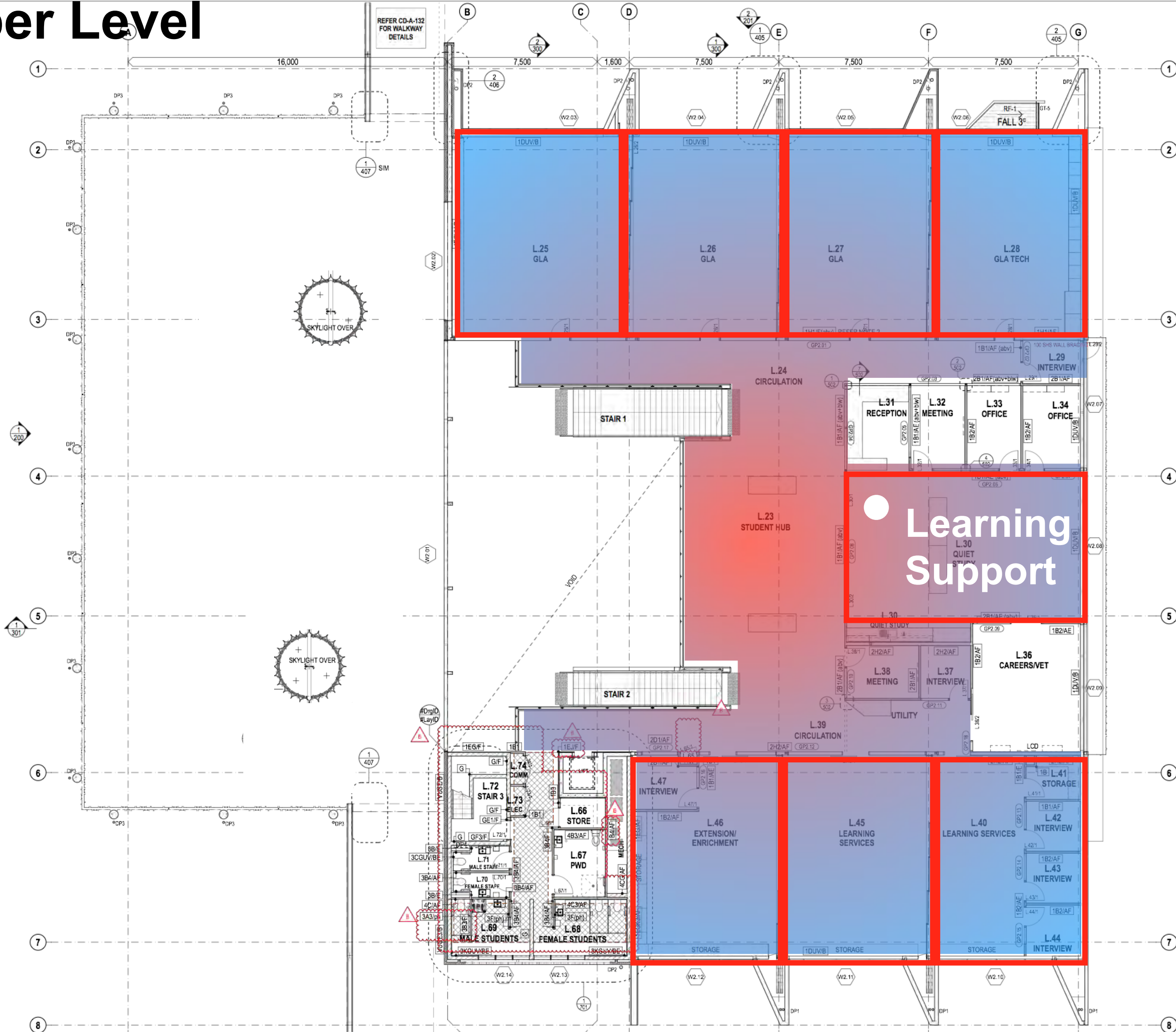
**LEVEL 00**  
**FLOOR PLANS**

Plot Date 13/03/2015	Drawn	Check
	Project No. <b>5016</b>	Scale 1:100 at A1
	Drawing No. <b>CD-A-130</b>	Revision <b>B</b>

PRELIMINARY - NOT FOR CONSTRUCTION



# Plans - Upper Level



READING CODES		e.g. - [180A]		PARTITION LINING AND STRUCTURE				LEGEND				SPECIAL CHARACTERISTICS				PARTITION NOTES											
1	1 <sup>a</sup> DENOTES WALL LINING TYPE ON FACE WHICH BOX IS LOCATED e.g. 13mm PLASTERBOARD			1	13mm PLASTERBOARD			A	64mm STEEL STUD			H	76mm STEEL STUD			/A	ACOUSTIC INSULATION AS SPECIFIED			(abv)	DENOTES PARTITION ABOVE OPENING / GLAZING / CEILING			1	BMT OF STEEL STUDS - REQUIRED SPACING OF STUDS TO BE CONFIRMED AND CERTIFIED BY PARTITIONS CONTRACTOR. DETERMINE WITH STUD MANUFACTURER STUD SIZES TO SUIT WALL HEIGHT, LOAD ETC.		
2	2 <sup>b</sup> DENOTES WALL STRUCTURE e.g. 16mm STEEL STUD			2	2 LAYERS 13mm PLASTERBOARD			B	76mm STEEL STUD				STAGGERED IN 150mm TRACK			/B	THERMAL INSULATION AS SPECIFIED (REFER CD190)			(bvw)	DENOTES PARTITION BELOW GLAZING / OPENING			2	SECONDARY STUDS POSTERS & BRACING WALLS WITH STUDS TO BE PROVIDED WHERE REQUIRED TO BRACE WALLS AND FORM OPENINGS FOR GLAZED PARTITIONS / PANELS		
3	3 <sup>c</sup> DENOTES LINING TYPE TO OPPOSITE FACE OF WALL e.g. 13mm PLASTERBOARD			3	9mm FIBRE CEMENT			C	92mm STEEL STUD			J	200mm REINFORCED			/C	FRAMING & LINING ON ONE SIDE OF WALL TO EXTEND TO US OF SLAB / ROOF SHEET			(gh)	DENOTES PART HEIGHT PARTITIONS			3	LINING TO EXTEND 100mm ABOVE CEILING UNLESS NOTED OTHERWISE		
4	4 <sup>d</sup> DENOTES SPECIAL CHARACTERISTICS e.g. ACOUSTIC INSULATION			4	2 LAYERS 9mm FIBRE CEMENT			D	150mm STEEL STUD			K	CONCRETE AS SPECIFIED			/D	PARTITION TO EXTEND FULL HEIGHT TO US OF SLAB / ROOF SHEET										
								E	28mm FURRING CHANNEL			L	16mm FURRING CHANNEL			/E											
								F	40mm TOPHAT			U	Cavity														
								G	190mm BLOCKWORK			V	EXTERNAL CLADDING														

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### PLAN LEGEND

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B	WASTE BINS, REFER LANDSCAPE
DP-#	DOWNPIPES TYPES, AS SCHEDULED
ED-E	ELECTRICAL DUCT, REFER ELECTRICAL
DCH	DISHARGE COWL, REFER MECHANICAL
FB(WP)F	FLOOR BOX, WATER RESISTANT IP RATED TYPE
FB-#	FLOOR BOX
FH	FIRE HYDRANT, REFER HYDRAULIC
GT-#	GUTTER TYPE AS SCHEDULED
LCD	LCD TELEVISION SCREEN
RF-#	ROOF TYPE AS SCHEDULED
VP	VENT PIPES, REFER HYDRAULIC
VTC	VERTICAL TRELLIS CABLES WITH VINES SUPPORT INTEGRATED WITH COLUMN, REFER DETAILS

### PLAN NOTES

1. CONTRACTOR TO PROVIDE NOGGINGS REQUIRED TO SUPPORT WALL MOUNT FIXTURES
2. PARTITION STRUCTURE INDICATED ABOVE GLAZING TO BE COORDINATED WITH CEILING BULKHEAD EXTENT. REFER CEILING DETAILS.

A	GMCC Interim Issue	10/03/2015	
B	GMCC Issue	13/03/2015	PL
Rev	Revision Description	Date	Ver

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Client

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MANAGEMENT (AUST) PTY LTD**


Project

ST ANDREW'S ACADEMIC  
CENTRE

<b>Title</b>	
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## LEVEL 01

### FLOOR PLANS

Plot Date 13/03/2015		Drwn	Chck
	Project No. <b>5016</b>		Scale 1:100 at A1
	Drawing No. <b>CD-A-131</b>		Revision <b>B</b>

PRELIMINARY - NOT FOR CONSTRUCTION



# Plans - Upper Level




READING CODES e.g. -13RA		PARTITION LINING AND STRUCTURE LEGEND				SPECIAL CHARACTERISTICS				PARTITION NOTES	
1	DENOTES WALL LINING TYPE ON FACE WHICH BOX IS LOCATED e.g. 13mm PLASTERBOARD	1	13mm PLASTERBOARD	A	64mm STEEL STUD	H	76mm STEEL STUD	/A	ACOUSTIC INSULATION AS SPECIFIED	(abv)	DENOTES PARTITION ABOVE
2	DENOTES WALL STRUCTURE e.g. 76mm STEEL STUD	2	2 LAYERS 13mm PLASTERBOARD	B	76mm STEEL STUD		STAGGERED IN 150mm TRACK	/B	THERMAL INSULATION AS SPECIFIED (REFER CD190)		OPENING / GLAZING / CEILING
3	DENOTES LINING TYPE TO OPPOSITE FACE OF WALL e.g. 13mm PLASTERBOARD	3	9mm FIBRE CEMENT	C	92mm STEEL STUD	J	200mm REINFORCED CONCRETE AS SPECIFIED	/E	FRAMING & LINING ON ONE SIDE OF WALL TO EXTEND TO U/S OF SLAB / ROOF SHEET	(b/w)	DENOTES PARTITION BELOW GLAZING / OPENING
4	DENOTES SPECIAL CHARACTERISTICS e.g. ACOUSTIC INSULATION	4	2 LAYERS 9mm FIBRE CEMENT	D	150mm STEEL STUD	K	16mm FURRING CHANNEL	/F	PARTITION TO EXTEND FULL HEIGHT TO U/S OF SLAB / ROOF SHEET	(ph)	DENOTES PART HEIGHT PARTITIONS
				E	28mm FURRING CHANNEL	L	40mm TOPHAT				
				F	40mm TOPHAT	G	190mm BLOCKWORK	V	EXTERNAL CLADDING		
				G	190mm BLOCKWORK						

1. BMT OF STEEL STUDS - REQUIRED SPACING OF STUDS TO BE CONFIRMED AND CERTIFIED BY PARTITIONS CONTRACTOR. DETERMINE WITH STUD MANUFACTURER STUD SIZES TO SUIT WALL HEIGHT, LOAD ETC.

2. SECONDARY STEEL POSTS & BRACING WITHIN STUD WALL FRAMING TO BE PROVIDED WHERE REQUIRED TO BRACE WALLS AND FORM OPENINGS FOR GLAZED PARTITIONS / PANELS.

3. LINING TO EXTEND 100mm ABOVE CEILING UNLESS NOTED OTHERWISE

NOTES			
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PLAN LEGEND			
AM-#	ROOF ACCESS MAINTENANCE SAFETY SETUP & EQUIPMENTS LOCATIONS ARE INDICATIVE ONLY.		
	REFER SPECIFICATION AND MATERIAL & PRODUCT REQUIREMENTS FOR DESIGN, SUPPLY, INSTALL & CERTIFY REQUIREMENTS		
B	WASTE BINS, REFER LANDSCAPE		
DP-#	DOWNPIPES TYPES, AS SCHEDULED		
ED	ELECTRICAL DUCT, REFER ELECTRICAL		
DCH	DISCHARGE COWL, REFER MECHANICAL		
FB(WP)	FLOOR BOX, WATER RESISTANT IP RATED TYPE		
FB-#	FLOOR BOX		
FH	FIRE HYDRANT, REFER HYDRAULIC		
GT-#	GUTTER TYPE, AS SCHEDULED		
LCD	LCD TELEVISION SCREEN		
RF-#	ROOF TYPE, AS SCHEDULED		
VP	VENT PIPES, REFER HYDRAULIC		
VTC	VERTICAL TRELLIS CABLES WITH VINES SUPPORT INTEGRATED WITH COLUMN, REFER DETAILS		
PLAN NOTES			
1. CONTRACTOR TO PROVIDE NOGGINGS REQUIRED TO SUPPORT WALL MOUNT FIXTURES			
2. PARTITION STRUCTURE INDICATED ABOVE GLAZING TO BE COORDINATED WITH CEILING BULKHEAD EXTENT. REFER CEILING DETAILS.			
A	GMMC Inroom Issue	10/03/2016	
B	GMMC Issue:	13/03/2015	PL
Rev	Revision Description	Date	Ver
Architect			
<div style="text-align: center;"><h1>WilsonArchitects</h1><p>564 Boundary St. Spring Hill Brisbane QLD 4000 Australia <a href="#">wa@wilsonarchitects.com.au</a></p><p>T 07 3831 2755 F 07 3832 1129 ABN 11 009 960 838</p></div>			
Client			
<div style="text-align: center;"><b>CONSTRUCTION &amp; PROJECT MANAGEMENT (AUST) PTY LTD</b></div>			
Project			
<div style="text-align: center;"><b>ST ANDREW'S ACADEMIC CENTRE</b></div>			
Title			
<div style="text-align: center;"><b>LEVEL 01 FLOOR PLANS</b></div>			
Plot Date 13/03/2015	Project No. <div style="font-size: 2em;">5016</div>	Drawn	Check
	Drawing No. <div style="font-size: 1.5em;">CD-A-131</div>		Scale 1:100 at A1 Revision <div style="font-size: 1.5em;">B</div>
<b>PRELIMINARY - NOT FOR CONSTRUCTION</b>			



# Plans - Upper Level

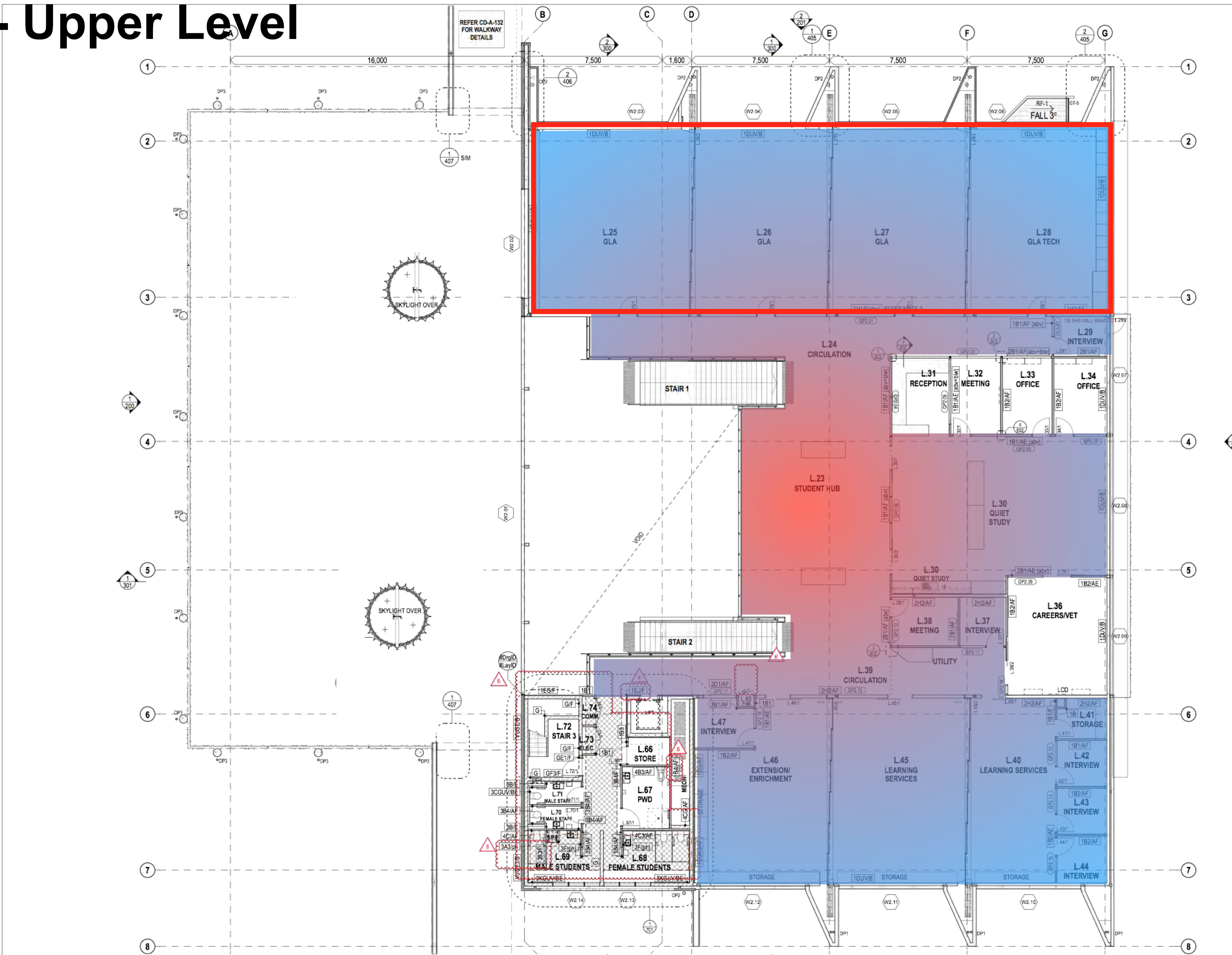


READING CODES e.g. 1-1386A		PARTITION LINING AND STRUCTURE LEGEND				SPECIAL CHARACTERISTICS				PARTITION NOTES	
1	DENOTES WALL LINING TYPE ON FACE WHICH BOX IS LOCATED e.g. 13mm PLASTERBOARD	A	14mm STEEL STUD	H	76mm STEEL STUD	JA	ACOUSTIC INSULATION AS SPECIFIED	(abv)	DENOTES PARTITION ABOVE OPENING / GLAZING / CEILING	1.	BUT OF STEEL STUDS - REQUIRED SPACING OF STUDS TO BE CONFIRMED AND CERTIFIED BY PARTITIONS CONTRACTOR. DETERMINE WITH STUD MANUFACTURER STUD SIZES TO SUIT WALL HEIGHT, LOAD ETC.
2	DENOTES WALL STRUCTURE e.g. 76mm STEEL STUD	B	76mm STEEL STUD	J	200mm REINFORCED	JB	THERMAL INSULATION AS SPECIFIED (REFER CD190)	(bvw)	DENOTES PARTITION BELOW GLAZING / OPENING	2.	SECONDARY STUD SIZES & FRAMING WITHIN STUD WALL FRAMING TO BE PROVIDED WHERE REQUIRED TO BRACE WALLS AND FORM OPENINGS FOR GLAZED PARTITIONS / PANELS
3	DENOTES LINING TYPE TO OPPOSITE FACE OF WALL e.g. 13mm PLASTERBOARD	C	9mm FIBRE CEMENT	K	CONCRETE AS SPECIFIED	KA	FRAMING & LINING ON ONE SIDE OF WALL TO EXTEND TO U/S OF SLAB / ROOF SHEET	(pb)	DENOTES PART HEIGHT PARTITIONS	3.	LINING TO EXTEND 100mm ABOVE CEILING UNLESS NOTED OTHERWISE
4	DENOTES STEEL LINING TYPE TO OPPOSITE FACE OF WALL e.g. 13mm PLASTERBOARD	D	2 LAYERS 13mm PLASTERBOARD	L	16mm FURRING CHANNEL	LA	PARTITION TO EXTEND FULL HEIGHT TO U/S OF SLAB / ROOF SHEET				
5	DENOTES SPECIAL CHARACTERISTICS e.g. ACOUSTIC INSULATION	E	2 LAYERS 9mm FIBRE CEMENT	M	16mm FURRING CHANNEL	MA	CAVITY				
		F	40mm TOPHAT	N	EXTERNAL CLADDING	NA					
		G	190mm BLOCKWORK	O		OA					

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PLAN LEGEND			
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B	WASTE BINS, REFER LANDSCAPE		
DP-#	DOWNPIPES TYPES, AS SCHEDULED		
ED	ELECTRICAL DUCT, REFER ELECTRICAL		
DCH	DISCHARGE COWL, REFER MECHANICAL		
FB(WF)	FLOOR BOX, WATER RESISTANT IP RATED TYPE		
FB-#	FLOOR BOX		
FH	FIRE HYDRANT, REFER HYDRAULIC		
GT-#	GUTTER TYPE AS SCHEDULED		
LCD	LCD TELEVISION SCREEN		
Rf-#	ROOF TYPE AS SCHEDULED		
VP	VENT PIPES, REFER HYDRAULIC		
VTC	VERTICAL TRELLIS CABLES WITH VINES SUPPORT INTEGRATED WITH COLUMN, REFER DETAILS		
PLAN NOTES			
1.	CONTRACTOR TO PROVIDE NOGGINGS REQUIRED TO SUPPORT WALL MOUNT FIXTURES		
2.	PARTITION STRUCTURE INDICATED ABOVE GLAZING TO BE COORDINATED WITH CEILING BULKHEAD EXTENT. REFERENCE CEILING DETAILS.		
A	GIMCC Interim Issue	10/03/2016	
B	GIMCC Issue	13/03/2015	FL
Rev	Revision Description	Date	Ver
Architect			
<b>Wilson Architects</b>			
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Client			
<b>CONSTRUCTION &amp; PROJECT MANAGEMENT (AUST) PTY LTD</b>			
Project			
<b>ST ANDREW'S ACADEMIC CENTRE</b>			
Title			
<b>LEVEL 01 FLOOR PLANS</b>			
PLOT DATE 13/03/2015	PROJECT No. <b>5016</b>	Drawn	Check Scale 1:100 at A1
	Drawing No. <b>CD-A-131</b>		Revision <b>B</b>
PRELIMINARY - NOT FOR CONSTRUCTION			



# Plans - Upper Level



READING CODES e.g. H-198A		PARTITION LINING AND STRUCTURE LEGEND						SPECIAL CHARACTERISTICS				PARTITION NOTES	
'1'	DENOTES WALL LINING TYPE ON FACE WHICH BOX IS LOCATED e.g. 13mm PLASTERBOARD	A	13mm PLASTERBOARD	B	64mm STEEL STUD	H	76mm STEEL STUD	/A	ACOUSTIC INSULATION AS SPECIFIED	(abv)	DENOTES PARTITION ABOVE		1. BMT OF STEEL STUDS + REQUIRED SPACING OF STUDS TO BE CONFIRMED AND CERTIFIED BY PARTITIONS CONTRACTOR. DETERMINE WITH STUD MANUFACTURER STUD SIZES TO SUIT WALL HEIGHT, LOAD ETC.
'2'	DENOTES WALL STRUCTURE e.g. 15mm STEEL STUD	C	2 LAYERS 13mm PLASTERBOARD	B	76mm STEEL STUD	I	STAGGERED IN 150mm TRACK	/B	THERMAL INSULATION AS SPECIFIED (REFER CD190)	(btw)	DENOTES PARTITION BELOW		2. SECONDARY STEEL STUDS FRAMING WITH S/D WALL FRAMING TO BE PROVIDED WHERE REQUIRED TO BRACE WALLS AND FORM OPENINGS FOR GLAZED PARTITIONS / PANELS
'3'	DENOTES LINING TYPE TO OPPOSITE FACE OF WALL e.g. 13mm PLASTERBOARD	D	9mm FIBRE CEMENT	C	92mm STEEL STUD	J	200mm REINFORCED	E	FRAMING & LINING ON ONE SIDE OF WALL TO EXTEND TO U/S OF SLAB / ROOF SHEET	(pb)	DENOTES PART HEIGHT PARTITIONS		3. LINING TO EXTEND 100mm ABOVE CEILING UNLESS NOTED OTHERWISE
'4'	DENOTES SPECIAL CHARACTERISTICS e.g. ACOUSTIC INSULATION	F	2 LAYERS 9mm FIBRE CEMENT	D	150mm STEEL STUD	K	CONCRETE AS SPECIFIED	/F	PARTITION TO EXTEND FULL HEIGHT TO U/S OF SLAB / ROOF SHEET				
				E	28mm FURRING CHANNEL	L	15mm FURRING CHANNEL						
				F	40mm TOPHAT	U	C/WATTY						
				G	190mm BLOCKWORK	V	EXTERNAL CLADDING						

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DP-B	DOWNPIPES TYPES, AS SCHEDULED
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DCH	DISCHARGE COWL, REFER MECHANICAL
FB(WP) FB-B	FLOOR BOX, WATER RESISTANT IP RATED TYPE FLOOR BOX
FH	FIRE HYDRANT, REFER HYDRAULIC
GT-B	GUTTER TYPE AS SCHEDULED
LCD	LCD TELEVISION SCREEN
RF-B	ROOF TYPE AS SCHEDULED
VP	VENT PIPES, REFER HYDRAULIC
VTC	VERTICAL TRELLIS CABLES WITH VINES SUPPORT INTEGRATED WITH COLUMN, REFER DETAILS

### PLAN NOTES

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2. PARTITION STRUCTURE INDICATED ABOVE GLAZING TO BE COORDINATED WITH CEILING BULKHEAD EXTENT. REFER CEILING DETAILS.

A	GMCC Interim Issue	10/03/2015	
B	GMCC Issue	13/03/2015	PA
Rev	Revision Description	Date	Ver

Architect

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Client

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MANAGEMENT (AUST) PTY LTD**


Project

ST ANDREW'S ACADEMIC  
CENTRE

Title

## LEVEL 01

### FLOOR PLANS

Plot Date 13/03/2015		Drwn	Chck
	Project No. <b>5016</b>		Scale 1:100 at A1
	Drawing No. <b>CD-A-131</b>		Revision <b>B</b>

PRELIMINARY - NOT FOR CONSTRUCTION



St Andrew's College





















# St Andrew's College







Given: ...  
...  
...  
...

N° balls	10	20	30	50
Cost (C)	90	140	190	290

Cost of ball =  $\frac{90}{10} = 9$

For 50 balls:  $50 \times 9 = 450$

$$C = 9b + 40$$

1) ...  $b = 38$   $C = 5b + 40$   
 $= 5 \times 38 + 40$   
 $= 220$

2) How many balls for \$200?  $C = 200$   
 $200 = 5b + 40$   
 $160 = 5b$   
 $b = 32$



























