Design Incubator
A VISION FOR ARCHITECTURAL EDUCATION IN THE TWENTY-FIRST CENTURY
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A vision for architectural education in the twenty-first century

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In loving memory of Robert, Reg and Ann
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Architecture occupies our lives and we occupy it. It is where we live, learn, work, and play. It gives us shelter and a place to call our own. Whether the place or space is mundane or completely captivating, someone has put their heart and soul into it for you to enjoy. Unfortunately the art and craft of architectural education is hidden behind closed doors, and the studio is deemed ‘creative’ and exclusive from the outside world.

Architectural education has not changed since the academic model was developed. It has been integrated into the campus and institutional facilities. This results in students being secluded from the public, considering architecture is all about the interaction and engagement of people it seems amiss that the ‘campus’ may not be a suitable model for an architectural institute.

This project will try to uncover why architectural education appears to be exclusive, and how the exclusive nature can be broken down to be more inclusive. In order to do this the project will aim to create a dialogue between the public, private and professional domains by placing the architecture school in the public eye in an urban context. This shift out of
the campus facade will allow an exchange between the public and private on a face to face level. By achieving this, a creative dialogue will be met between the people who create and the people who occupy.
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Architectural education has not changed since the transition from the apprenticeship model to the academic, nor has its teaching spaces and built environment. The studio, crit and lecture theatre models still have a major presence in architectural education. Although radical transformations are taking shape in other disciplines throughout education, architectural education appears to be using the same techniques.

Here we recognize that the ‘new’ techniques employed by different disciplines are not new, in fact, architectural education has been using them for centuries and will continue to do so. Therefore, this project does not aim to dramatically change architectural education. It does aim to find out why architectural education has not changed, and if architectural teaching does not need to change how can twenty-first century principles influence architectural education for the better, and how might this influence transform the built environment.

The design of this architecture school will be located in the urban context of Auckland’s CBD, giving the school the potential to engage with the public, profession and creative communities. Promoting the school and
allowing this engagement should help increase the awareness of architecture and how it affects our lives. Achieving this engagement should allow students to show their dedication and passion to the community. This engagement is aimed at breaking down the image of the architecture school being “too hypothetical, theoretical, and largely unconcerned with the realities of practice”.

It is here the project name Design Incubator is adopted, the term incubator is defined as;

“(med) an enclosed transparent boxlike apparatus for housing prematurely born babies under optimum conditions until they are strong enough to survive in the normal environment”

From this definition we derive that an incubator for this project is a place that devotes its time and energy into the nurturing of students. It is “devoted to fostering partnerships between students, academic institutions and private industry”. The Design Incubator will foster exploration, curiosity and creativity and will establish new forums for the exchange of ideas within the institution and industry.

Research Question

To achieve the objectives of this project a research question has been proposed:

How can an architecture school redefine its image as a place to inspire its students, staff and the surrounding community, combining twenty-first century learning techniques to enrich the learning provided and encourage public involvement?

Every person worldwide who is concerned with education is talking about reform and the paradigm shift. We have only recently seen the shift take place at most levels and disciplines in primary, secondary and tertiary education. Due to the increasing amount of knowledge being generated during the twentieth century international thinking began to examine education through a different lens. “The shift was driven by an awareness of massive and ongoing social, economic and technological changes” 4.

The shift spread and as a result we began to question the role and purpose of it. People started to examine how they might better teach their students and children, when they cannot predict the next technological advancement or know what will happen in the economy tomorrow. Due to this scrutiny, people have realised that living in this century requires a myriad of multiple layers of knowledge, we live in a world of “unprecedented... complexity, fluidity and uncertainly” 5 as such, people need to be taught

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5 Ibid
differently. The problem which is recognised today is that our “current education system was designed and conceived and structured for a different age. It was conceived in the intellectual culture of the Enlightenment during the economic circumstances of the Industrial Revolution”\(^6\). The Enlightenments’ view of intelligence has influenced our education system. Favouring the capacity for deductive reasoning\(^7\) and a knowledge of the past, what we like to call academic ability. However, today we can no longer learn from the classics, or be spoon fed information we ‘ought’ to know. We must learn how to be knowledgeable in a different type of society, in which we have to solve problems employing methods and technologies we have not yet invented and explored, and apply them to solutions we do not even know yet. This is a world where complexity, fluidity and uncertainty are present in everyday life, not just at work but in education as well.

1.1 New Understandings

“New” understandings about learning are not new; they have been around for some time. The applications of these models are only starting to be developed. A key concept that ultimately drives education is learning. How we learn is paramount to knowledge and success. However, how people learn is complex in itself. Figure 1 represents many theories about learning - it shows the diverse and expansive realm of learning as many different theories have emerged. Therefore, defining what it is to learn and how we learn becomes a very difficult task.


\(^7\) Deductive reasoning: is a logical process in which a conclusion is based on the concordance of multiple premises that are generally assumed to be true. Deductive reasoning is sometimes referred to as top-down logic. Its counterpart, inductive reasoning, is sometimes referred to as bottom-up logic. (Rouse, Margret. “Deductive Reasoning.” WhatIs.com. May 1, 2013. Accessed April 22, 2015. http://whatis.techtarget.com/definition/deductive-reasoning)
Hands on learning and teaching is one of the main theories that repeats through many of them. Research clearly shows that people do not learn well when they are force fed knowledge. Good learning requires active engagement, “the more people learn, the more they are capable of learning”\textsuperscript{8}. Although many of the principles of hands-on, practical and active engagement are understood by teachers, our education system and practices are often set up in ways that do not support them.

If we are more aware of the impact emerging principles have on our educators and students, a wider understanding of their principles may be heard and therefore translate better into our education system more productively.

Some of the emerging principles directly correlate to the fundamentals of learning, and are effectively embedded in the human consciousness and behavioural psychology. A few of these principles are presented as follows. Personalised learning goes against the grain of standardisation which was prevalent during the Enlightenment. Instead, personalised learning aligns with the idea that education systems must move away from the Industrial Age of the ‘one-size-fits-all” model. It calls for a reversal, whereby the system is built around the learner, rather than the learner having to ‘fit’ within the system.

“It requires schools to radically rethink how they operate. Many of the basic building blocks of traditional education: the school, the year group, the class, the lesson, the blackboard and the teacher standing in front of a class of thirty children, have become obstacles to personalised learning. Personalised learning means differentiated provision to meet differentiated needs. All the resources available for learning—teachers, parents, assistants, peers, technology, time and buildings—have to be deployed more flexibly.”\textsuperscript{9}


Charles Leadbeater goes on to write in his report *The Shape of Things to Come: personalised learning through collaboration* that,

“It demands a system capable of offering bespoke support for each individual that recognises and builds upon their diverse strengths, interests, abilities, and needs in order to foster engaged and independent learners able to reach their full potential.”

Developing everyone’s potential is one of the most important dimensions of the twenty-first century view of personalised learning. It breaks down the boundaries of the one-size-fits-all models, and realises that students are different and unique in many ways. People learn differently and should not be treated as if they are a failure for not conforming to a model that is not suited to them. Its goal is not simply to raise achievement, but to support every person to develop their full potential. This benefits both society and the individual as the system will no longer generate under-achievers simply because some cannot conform.

Equality, diversity and inclusivity are commonly discussed within the dimension of twenty-first century principles. Literature suggests that citizens need to be educated for diversity in both humanitarian and the knowledge sense. The ever changing environment requires people to engage in ways they have not before, to be able to work with people from cultural, religious and ethnic backgrounds that may be very different from their own. Although equality has always been seen as a key driver, it has become apparent that it is an essential part of today’s learner.

A future focused education system “must provide learners with past paradigms and the ability to think between, outside and beyond them - that is, the ability to work with a diversity of ideas.” This suggests that although we need to be diverse and accepting of other people’s culture, religions and backgrounds we also need to be able to provide learners with the ability to

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10 Ibid, 8

think in diverse ways. Alongside the idea of diversity is its association with collaboration. The ability to work as a team offers an opportunity for learners to engage with other people across a broad spectrum of intra and inter-disciplinary environments. Collaborative learning sets up a model which has the capability to interact with the principles of personalised learning and equality, diversity and inclusivity. It allows students to collaboratively work in groups of different, or in some cases, the same backgrounds. Smaller groups are preferable, as they allow students to talk, interact and engage in learning.

Acquiring knowledge in a twenty-first century paradigm is a big challenge, our current ideas of knowledge are embedded in two quite different epistemologies of what counts as ‘knowledge’. The ‘traditional’ approach to knowledge is that it is content or ‘stuff’ organised into a curriculum according to disciplines (a siloed approach). From this view the job of the learner is to absorb this knowledge, and then be tested to see how well they remember that knowledge in a standardised test - those who did poorly were considered ‘failures’ and were seen to lack the capacity to be learners, they were deemed suitable for a ‘vocational’ pathway. These were the paradigms that underpinned the Industrial Age and unfortunately still have a major presence in our current system.

The twenty-first century’s meaning of knowledge defines it as the thing that does stuff; and is not just content. Knowledge here is about creating and using it to solve problems on a just-in-time basis. The Knowledge Age argues that “reproducing existing knowledge can no longer be education’s core goal”, because we can no longer predict or determine what knowledge should be stored. Rather the focus for thinking about how knowledge is developed should be how we use knowledge to solve answers to things we do not know yet. Equipping people with the ability to use ‘knowledge’ to solve problems, to use it inventively in new contexts and combinations.

The context that this new age knowledge comes from is also
The principles presented; personalised learning, collaborative learning, engagement with the community and knowledge are slowly starting to shape our education system and break the boundaries of the Enlightenment view on education. The next few sections will outline two theories that have supported twenty-first century pedagogy.

1.2 Key Theories

Two key theories that directly correspond to the principles of twenty-first century education listed above are Participatory and Experiential Learning. Both theories are not new, during the latter half of the twentieth

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century when discussions about the future of education were taking place these two theories remained prevalent, and they underline many of the principles of today’s learning.

Participatory learning comes from the word participation, which refers to the action of taking part in activities and projects, the act of sharing in the activities as a group. This is also where project based and hands-on-learning stems from ‘the art of practice makes perfect’, for we only learn deeply by participation and engagement with activities, and putting what we learn into practice. Collaboration is a useful style of learning and teaching that engages students in a participatory culture which achieves the desired educational outcome.

“A participatory classroom is one in which students make choices about what they learn and negotiate how they learn. In a digitally connected environment…”

Experiential learning or learning through experience is ancient. Around 350 BC Aristotle wrote

“for the things we have to learn before we can do them, we learn by doing” - Aristotle

It began in the 1970s with David Kolb who helped to develop the modern theory of experiential learning, and draws heavily on the work of John Dewey, Kurt Lewin and Jean Piaget. Experiential learning is also referred to as learning by doing, learning through experience, and learning through exploration and discovery, which are clearly defined by these proverbs.

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17 Nicomachean Ethics, Book 2, Ross translation (1908).
"I hear and I forget, I see and I remember, I do and I understand.

~ Confucius, 450 BC

Tell me and I forget, Teach me and I remember, Involve me and I will learn.

~ Benjamin Franklin, 1750

There is an intimate and necessary relation between the process of actual experience and education.

~ John Dewey, 1938

The process of learning through this model follows five questions. “Did you notice...?, Why did that happen?, Does that happen in life?, Why does that happen?, How can you use that?” These questions are posed by the facilitator and although they are simple they steer the group towards critical thinking and reflection, they start to formulate an understanding of how they can apply their learning to their own life. This model clearly focuses on the process of the learning, this is the heart of the experiential learning theory. Each of these theories provide a description of twenty-first century principles in practice, each has their time and place, and both pay particular importance to the learner. These learning environments and theories are emerging internationally and much research and many initiatives are being put in place, as a response to the discoveries and benefits of twenty-first century learning.

Although these initiatives are aimed at Primary and Secondary education, Tertiary education must also utilise these resources, in order to keep up with the demand for the quality of built environment. The gap between traditional learning and modern learning environments in education will lessen. Students will come out of school demanding the type of learning they were given then, and for their tertiary education providers to do the same.

Education in higher learning institutes varies upon which discipline you learn and teach in. Different tasks may require different teaching methods, some of the same principles applied to Modern Learning Environments are also taking shape in higher education, as a result
transformations not only through pedagogy but also through the response to design are taking place across many universities.

1.3 Learning Spaces

Modern learning environments have a place in theoretical understanding, however their real contribution to education is when they are applied physically to the built environment. Modern learning environments may be understood to “be the complete physical, social and pedagogical context in which learning is intended to occur”20. These environments and buildings should be capable of lasting 50 plus years. Careful thought should be given to making the building adaptable and agile enough to respond to both current needs and foreseeable changes. At present our educational buildings are not responding to the research being undertaken. Ideas such as collaboration, peer learning, and practical project-based learning need new environments. Modern learning environments are about giving students maximum flexibility in their learning. Open plan, flexible spaces, with room for change and innovation are what educational facilities require.

Below are some generalised diagrams progressing from left to right showing the typically development from traditional to modern learning environments classroom layout.
The following images (Fig 6 - 7) are primary, and tertiary learning institutes which have embodied the principles of twenty-first century learning spaces.
Education providers including primary, secondary and tertiary are transforming according to the principles of modern learning environments. For the development and application of this research tertiary education was chosen. The scope of the research only allowed for a particular area of study. Architectural education has been chosen for its explicit teaching approach centred around participatory and hands on learning techniques.

Architectural teaching is also inherently embedded in the open plan studio model, which was established in the seventeenth century. It is within these principles that the connection between architectural education and modern learning environments is made, and in some cases the research uncovers scenarios in which modern learning environments can learn from the principles.

This research will delve into history, building typology and some of the critical spaces used in architecture schools, along with critical revision of the typical curriculum.

Before the mid-eighteenth century the vast majority of
buildings were erected by builders with no desire to be designers. Architects were only responsible for designing major monuments such as churches and palaces. They considered residential and urban design as something that was beneath them. Since there was no formal education they were trained in the apprenticeship model, thus was the same for the three founders of Italian Renaissance architecture, “Brunelleschi was a goldsmith by training, Alberti was a humanist scholar and Michelangelo was a painter and sculptor”.

When the First World War ended “as a result of the slump, capital taxation, and the decline of church-going” Architects were forced to design everything from monuments to town planning. However it came with welcome response as the image of the profession and its involvement in building had been totally transformed. This response enabled architects to enjoy great public esteem in the 1960’s.

At the turn of the seventeenth century the Beaux-Arts system in France was the only model of formal architectural education. It emerged in

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22 Ibid, p4
response to the needs of the government and the value system of the time, it continued to be the only model for over two hundred years\(^2\)\(^3\). The curriculum was classical based around “construction, lettering, orders, measured drawing, composition and the study of typology and decorum, history, perspective, sciagraphy, sketching and studio design”\(^2\(^4\)\(^-\) these were considered fixed and unchangeable. As a response to technological developments resulting from the Industrial Revolution, in 1919 the Bauhaus model in Germany was developed. Alongside the Industrial Revolution, many of our traditional theories in education emerged. The Bauhaus model was dominated by Johannes Itten (Fig 8) an art teacher who was influenced by educational theories such as John Dewey’s ‘learning by doing’. However Itten’s influence on the Bauhaus model was aimed at students creativity and the stimulation of abstract ideas through a series of exercises from simple to complex. Itten left the school in 1923 and from then the Bauhaus model developed a different


kind of language. It was influenced by Walter Gropius’s a German architect and founder of the Bauhaus School whose interests were in preparing students for industrial design. After 1923, the Bauhaus workshops were used more for mass-production of prototypes then for crafts training. Here we saw a large influence from the Industrial Revolution and its impact on the Bauhaus model.

Both models of architectural education have played a huge role in shaping where its education is today. Although both Beaux-Arts and the Bauhaus models are very different in curriculum - Beaux-Arts is fine art driven and Bauhaus is of mass production. They both share important qualities when addressing the needs of society. They also laid considerable importance on the “formal and technological aspects of architecture, with little or no concern for social or cultural issues.” They had a heavy emphasis on the design studio being the main forum for the acquisition of knowledge with little influence from the outside world, resulting in the missed opportunity to learn from the depth of human experience.

Ten decades have passed since the formulation of the Bauhaus model. Despite considerable changes in all aspects of life including social, economic, political and environmental advancements, the current approach to teaching design is still embedded in the principles, rules and practices developed in the past. The Beaux-Arts and Bauhaus models still have a great influence over our teaching principles today. Societies within the twenty-first century are in a constant state of flux and transformation. Learning systems should respond to the changes associated with these transformations. Architectural education is no exception and as such corresponding revision of our current architectural education system is imperative.

Education is the cornerstone of any design profession, since the “approach to” and the ‘content of’ that education is the foundation for students to be able to create responsive built environments. The following chapters will endeavour to establish a rationale for architectural education within the twenty-first century and where it fits in relation to the profession.

25 Ibid, p93
27 Ibid, p5
Also focusing on the teaching and learning environments that are typically associated with architecture schools, and how they may change the paradigms of twenty-first century architectural education to suit the needs of the student, profession, client and the education providers.

2.1 The Gap

Attention has been brought to the idea of new knowledge, and the discussions around it rely heavily on how students learn more effectively, and how this learning and new knowledge will affect the profession when students go into the work force. A disjunction lies between the practitioner, academic and the profession whereby each has a differing view of what kind of knowledge is valuable for the student. “Academics are interested in developing, testing and propagating knowledge; an approach that involves research and scholarship. Practitioners are concerned with short-term or rapid responses to situations, and while working on conventional projects, are unlikely to develop substantial new knowledge or share this knowledge freely. The profession has a longer-term perspective centred on refining and defining knowledge.”

This irregularity between the three parties should be concerning as there appears to be a gap between the education and the profession as a whole. Students should leave architecture school, knowing that what they have achieved is valuable to society. This is rarely the case, students entering the workforce soon realise that what they have learned is not acknowledged and they “typically express a low level of satisfaction with their educational experience”.

Architecture is a complicated subject to teach as architects deal with multiple layers of knowledge from different industries in order to pull together a design. It is the ability to work with different professions that appear to be one of the most valuable assets. However within the realm of education this is seldom the case.

A well connected architecture school forms relationships with industry professionals and the community, as well as providing the education that the students need. The ability to solve problems and think outside the

29 Ibid, p22
square will serve students, teachers and professionals better in the future.

2.2 Seclusion

One of the biggest challenges that the university environment faces is the ability to connect with the community on a physical level. Typically the public do not explore a university ‘campus’ unless there is an event on. This exclusive environment needs to be broken down so that the public is included.

Because architecture is about creating built environments that the client, user and the public can engage in. Architecture schools should respond in the same way including their learning environments. These have been and continue to be under scrutiny. The open flexible space model that has been talked about throughout education remains one of the most important learning environments in architectural education today, this is also known as the studio. This open flexible space model has been used in modern learning environments, because of its introduction the studio model in architectural education is seeing some review. One of the main reasons for the open flexible plan is to encourage collaboration, however within architecture studios this is a rare occasion.

Take the two diagrams below, the left shows a typical studio furniture layout in perhaps a language school, small clusters of tables and chairs arranged in a way to enhance team working and collaboration. In the diagram on the right the students are typically separated, they have their own desk space, this is commonly the case in architectural education ‘studios.’ In order to get students to collaborate this barrier should be
broken down at the beginning of any given project. It should not be a competition between students as this can hinder collaboration.

Although collaboration is important it is hard to achieve between students at a project level. Feedback and critical response can be given peer to peer, or peer to group which can be just as rewarding, and can also instil a collaborative nature. Collaboration as a term can be taken in its broadest sense, it can not only happen in a group situation but also at a community level. In order to break down the barriers students must be able to broaden their knowledge and interact with other industries, clients, professionals and peers, at a face-to-face level.

Many learning environments in architecture schools can foster collaboration, the ideas and systems that have been used throughout the centuries including the Bauhaus model have continued to have importance over how students learn today. The studio space, crit (presentation) spaces and the lecture theatres continue to have importance in architecture schools. Over the centuries the types of buildings architecture schools have occupied have varied but the spaces inside them have stayed the same.

2.3 Types of Architecture Precedent Study

Architecture school buildings vary depending on the context and era in which they were constructed. They can be placed into four distinct categories all of which reflect our attitudes towards cities and people, as well as the self-image of architects. Examining these types of buildings will help us to understand how architects think, what they aspire to, and how our ideas about the field have changed. They also reflect the pedagogical challenges faced within these eras and show the effect the built environment has on the education received. A recent study was conducted by Jack L. Nasar, Wolfgang F. E. Preiser and Thomas Fisher in which they describe and analyse four types of architecture buildings; the courtyard, compound, workshop and atelier type30

The courtyard type is essentially the mass of the building arranged around a open air space in the centre of the building, creating a space away

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The Evolution of Architectural Education

from the public and making a sense of place for the occupants. However, its introverted building typology can be seen to reinforce the idea that architectural education is an isolated field of study.

The compound type suggests that the point of reference for the school is the city whereby the campus or school is its own city siloed from the outside world forcing students into a more isolated environment.

The workshop type has a craft-like curriculum where the main spaces of focus are the workspaces dedicated to workshop activities. Which provides large spaces to allow for these exercises to occur. The Bauhaus model would be the main example of this type.

The atelier type is an informal setting where it is much like an artists’ studio and is open and flexible with neat or erratic placement of desks and furniture.
As stated architecture schools foster exclusive environments. An analysis of the types of buildings in architecture schools suggests the buildings can foster and add to this exclusivity. Take the courtyard example; all the occupants have a ‘safe place’ in the centre of the building, they do not feel the need to venture outside. This increases the exclusive and seclusive behaviour as the students do not feel the need to go beyond the barriers of their safe place. Although this may not be the intention of the occupants, the building encourages them to act in this way. From the public or outsiders point of view this exclusive environment is not engaging nor is it enticing.

By reversing these boundaries and engaging the public with the institution on a physical level, and activating the spaces beyond the perimeter, the public will be encouraged to actively participate.

“No new architecture can emerge without a new kind of relationship between designer and the user, without new kinds of programs” 31 - Frampton

In the interests of the future of the architectural profession, schools of architecture have a pressing duty to connect with their surrounding communities32.

In order for the community and professionals to engage in the activities presented, a revision of the main spaces an architecture school occupies must be taken. The next section will aim to address some of the issues with these spaces. How they may change through the architecture and how the curriculum may need to change, in order for some of these environments to take shape.

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2.4 Studio, Crit, Lecture Theatre, Community

Some of the stigma and why architectural education is seen to be very exclusive stems from the culture that the studio and review environments foster. These environments also encourage learning types that contribute to the exclusivity we see today. This may be because to teach architecture there appears to be two separate types of learning and teaching. Two environments that create conflict are the studio and the lecture theatre, both have their own importance, however one prevails above the other. Knowledge (lecture theatre) and skills (studio) go together and reinforce one another but the differences in the teaching and learning environments are completely opposite. On one hand the studio is a hands on project based type of learning that can instil creativity, collaboration and applied learning. The lecture theatre model is a didactic approach by where the teacher stands in front of an audience and talks, this is a very traditional model of teaching.

A twenty-first century approach such as the experiential learning

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model adopted by Kolb, proposes that people learn in a cyclic pattern\(^{34}\) shown in the diagram (fig 9). As mentioned this model poses some questions; “Did you notice...? , Why did that happen?, Does that happen in life?, Why does that happen?, How can you use that?”\(^{35}\). By coupling this theory with built environments that allow this type of learning to take place, a seminar type setting is suggested where the furniture can be rearranged to suit any number of students in groups, or arranged to face one presenter (fig 16 - 18).

During the last fifty years design studio has become one of the main focuses for architectural education\(^{36}\), yet the studio model has been repeatedly challenged. Dana Cuff UCLA’s director of cityLAB agrees that the design studio is, “the heart of architectural education”\(^{37}\), she also argues that the studio is potentially its greatest flaw. While the studio provides a

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Figure 17. Milstein Hall Configuration 2

Figure 18. Milstein Hall Configuration 3
social context for practice, it can also generate an unhealthy “clannishness” between students\textsuperscript{38}, and by doing so it produces an internally focused studio which eliminates many of the possibilities for collaboration. Studio based environments are often seen to be a model for collaboration, yet we should not mistake socialising for collaboration. Architecture students are seen to be more collaborative in their first years, this lessens as students become self-invested, and build self-esteem. This is not wrong but may encourage exclusive behaviour.

One of the most traditional and intense learning environments architecture students encounter is the crit or review, where the student stands in front of a panel of critics, typically with their peers sitting behind. The student presents their work to the panel and then critical feedback is given from the audience. On one hand it “encourages students to listen to, and participate in, discussions about design... and an opportunity for students to experience a variety of opinions about their work”\textsuperscript{39}. On the opposite side of the spectrum the crit/review can be a destructive overly personal experience, that has no critical learning, apart from learning that you are wrong, but not how you can improve. This is the worst case scenario, but happens often enough for it to be a problem.

Crit rooms are typically set up in an intense setting where students stand alone and face an audience of people whom they respect and possibly admire. The relationship between the presenter and listener frequently is undefined and made problematic, as the power between the two parties is uneven. This is supported by the unequal spatial arrangement which is sometimes defined by the room, more often than not is set up by the critics themselves. Further “the number of listeners in relation to presenters, the structure which favours tutor voices, and the positions of authority that tutors and visiting critics have in relation to the students”\textsuperscript{40} contribute to this unbalanced relationship which inhibits dialogue, meaning that student have little or no contribution to the review,

\textsuperscript{38} Ibid, 65
\textsuperscript{39} Ostwald, Michael J., and Anthony Williams. Understanding Architectural Education in Australia. Strawberry Hills, N.S.W.: Australian Learning and Teaching Council, 2008, p20
“and if there’s no dialogue, there’s no learning”

Students can obviously learn by listening, however conversation can develop an active engagement between the presenter, critic, tutor and fellow peers. This active engagement contributes to a deeper learning experience for all parties. It is no wonder that the traditional and established crit model of learning is unsuccessful at supporting learning and developing communications skills. If we flip this model, by placing the students in control, a different dialogue is heard and the students feel they can contribute. A power struggle should not ensue, but a level playing field by which any student, tutor, spectator and presenter should feel he or she may be able to engage in the dialogue. This exchange between peer to peer, may also be a building block for collaboration. Dialogue between peers is important as it starts to develop a level of communication between students and breaks down the barriers of the singular student.

Putting inclusivity high on the agenda throughout the architectural curriculum including the studio and crit will help support a wide range of learners and will help to promote a more inclusive environment. Community and connections with the public are other ways of introducing inclusivity into the pedagogy of the school. Engaging with the community - even at the smallest level - can allow students to develop a rapport with people outside of the university, students can learn from this exposure. The following section, will help to develop this idea further, by introducing the public into the built environment of the university, as well as pushing students into the community.

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Figure 19. Hierarchy of space towards presenter

Figure 20. Audience has no hierarchy towards presenter
2.5 Creative Block

Creative block is something that anyone knows about or has experienced. When you have something on the tip of your tongue but cannot put on paper, something is stopping you from getting it out of your creative brain and you do not know why. It is not until you go for a walk, have a shower, talk to someone, or even go to bed, that the “ah-ha” light bulb moment occurs, often at unfortunate of times. Being stuck in this creative bubble is heightened for architecture students as they spend most of their time indoors using a computer. The Creative block can be managed by doing different tasks or even enticing students to get out of their seats and walk around, talk to someone, experience nature, or even leave the complex to get something to eat - for everyone it is different. The placement of the university is vital to the success of getting students to do this (the site will be talked about in the following sections). Managing space placement and circulation throughout the school and creating spaces where students may experience contact with others is vital, to address creative block. Community and engagement with different people from different backgrounds can also play a large role. Diversity, as spoken about earlier, is one of the key principles of a twenty-first century learner - the ability to be able to work with a diverse set of ideas and people becomes crucial to any student in this century. Contact with a variety of people outside of the studio space can be facilitated by architecture.

The following section will highlight universities which are connecting with their communities and developing twenty-first century principles within architecture schools.
Figure 21. Outside of the Creative Box
Will Hunter founder and director of the London School of Architecture (LSA) has set out to develop a new kind of architecture school. LSA differs from the majority of architecture schools worldwide. Wills’ bottom up approach has seen the development of a new curriculum that takes shape in the form of something quite different. With over 30 London-based practices in LSA’s network of leading professional collaborators and their associate networks, from consultants and clients to engineers and artists.

“The London School of Architecture is a new school for a new century. Established to explore the full potential of architecture in today’s changing world, we are an independent and charitable education institution on a mission.”

The program was set up to focus on postgraduates, in 2015 their first intake was 25 students, then capped in subsequent years, at 40. The idea
behind this is that the school is a “family, not a factory”\textsuperscript{43}. The city becomes the school’s campus, students in their first year are engaged three times per week in their practice placements, and on other days they work on different projects. During the students second year they spend five days per week in the studio working on their thesis projects.

“\textit{The evolution of the world and of architecture must be intimately interrelated, and we wish the school’s graduates to be at the forefront of shaping this future}”\textsuperscript{44}

Because London is such a large city with many networks, the main objective for LSA is not to have its own building, but to secure its space from the rich resources of London. In the academic year 2015/16, their main spatial partner is the Design Museum in Shad Thames, where the majority of the lectures, seminars and crits take place.

The LSA is an important case study for this project as it outlines the importance of professional connections inside and outside of the school. Although this architecture school is on a larger scale, the principles of engaging students with the profession and its reliance on the profession, develops an overarching idea. It deals with the potential for students to learn from the people whom they will be employed by. Thus reducing the risk of the knowledge gap between these two groups.

Allowing students to engage beyond the perimeters of the school pushes the boundaries between the public and the private institution. Placing the students in an urban environment, instead of being encapsulated within the confines of the school allows them to engage with the outside world. The LSA is an example of a transformation in a large city, it is striving to develop new ways to teach architecture students. Although it does not have its own building, the model sets up ways in which the curriculum could change for the better.

The diagram to the right represents the relationships between all the networks at the LSA.

\textsuperscript{44} ibid
Figure 22. LSA Relationship Diagram
Parsons School of Constructed Environments occupies the new building designed by SOM which is located in the heart of New York, CBD. Their visions for the future of their school are seen and reflected throughout their programmes. “Creativity, innovation, and a desire to challenge the status quo, both in what and how we teach and in the intellectual ambitions of the School itself. Social engagement, orienting students’ academic experience to help them become critically engaged citizens dedicated to solving problems and contributing to the public good” is Parsons core goal.

Because their visions are so strong and embedded in the community it seems fitting to use Parsons as an example of pushing students into their community environment. One of their most successful projects was EMPOWERHOUSE: A COMMUNITY-BASED APPROACH, where students from different universities came together to create the first green residential building in Washington (Fig 23).
Their curriculum also allows students to get into the community and do real-world projects. When Parsons started to develop their connections to the community, they invited people to come to the school. The program has been so successful that the community now go to the school in order to commission the students to do work. By students having this real-world experience, they realise that they are able to go into the workforce and start their own businesses.

The school itself houses design students from many backgrounds, it has 200,00 square feet of academic space.

"Interactive spaces are dispersed vertically throughout the section to activate all levels of the building. In between these interactive zones are long, loft-style spaces that house 50,000 square feet of design studios, classrooms, and computing labs. These flexible spaces can be renovated or reconfigured with no impact on power, data, or lighting."
Parsons School of Constructed Environments highlights the importance of students connecting to the community that surrounds them, for they are the people whom they will one day design for. It is also reflected in the building the school occupies with its open flexible spaces that allow students to freely explore and reconfigure to their own desire, letting students actively engage in the spaces where they spend most of their time. The sharing of space is also important as it breaks down the hierarchy between students and staff.
3.3 Cornell University of Architecture, Art and Planning: Milstein Hall

“We advocate for the rights of all communities and all individuals to participate in the planning of their futures. We prepare our graduates for their role as world citizens in a diverse yet inclusive society.” ⁴⁷

“An important feature of the program is its relatively small size, fostering a sense of intellectual community essential to teaching and research.” ⁴⁸

Milstein Hall, not only provided the architecture department with much needed crit, studio and auditorium space. But also provided a connection to the rest of the dislocated buildings on site.

“a large elevated horizontal plate that links the second levels of Sibley and Rand Halls and cantilevers over University Avenue,"
reaching towards the Foundry building

Many of the spaces within Milstein Hall are flexible and open. The Auditorium (Fig 27) is open and flexible as multiple seating arrangements can be made including formal or informal. The studio spaces although open and vast have areas in which impromptu presentations can take place (Fig 26). The internal spaces as seen in Fig 28 are fluid in motion and allow occupants to see throughout the building from any position.

Milstein Hall acts as a connection point between the old and the new and brings the occupants together into one built environment.

Figure 26. Milstein Hall floor plan occupied

Figure 27. Milstein Hall Auditorium
It is apparent that these examples are very different from one another, this points out the diversity that architecture schools have. On one hand LSA is responding to the challenges that architecture schools face on a transformational level attempting things that have never been done before and using a city as a campus and testing ground.

Parsons takes a hands on approach to many things that they do, by introducing the community at many levels of design, this interaction is seen to be extremely beneficial for all the parties. Especially for students entering the work force after university.

Cornell takes on a traditional approach and couples it with twenty-first century principles including flexible space, and flexible auditorium.

Because of the diversity in these architecture schools; their pedagogy, site and approach to changes in architectural education have influenced the outcome of their built environment. One of the most important outcomes is the location and context beyond the site, and how that has an impact on the curriculum.

This next section will outline the brief for this project, and what type of pedagogical stance this architecture school will take and the influence the curriculum has on its built environment. The project will endeavour to learn from these examples, and explore others.
Architecture schools world-wide are often placed in old buildings that are not designed for their specified programme, secluded on a campus away from the public and surrounding communities. The consequence of the seclusivity stops the influence of outside knowledge permeating the creativity of students and staff. This knowledge is vital to the enrichment of creativity.

This project calls for a reversal by pushing the hierarchy between the public and the profession, and developing a more defined image as an educator that is not exclusive. Because these boundaries need to be explored between the three groups, the placement of the school is vital for the displacement of hierarchy. Therefore the urban context outside of the university campus is the most likely choice of site for this project.

It will aim to allow the influence of outside knowledge to inspire and enrich. The process of influencing students also allows them to influence the public. It becomes a place for inspiration which drives innovation and creativity.
The fundamental space requirements for the housing of the school will be:

- Studio spaces
- Crit/Review spaces
- Places for public engagement (inside and outside)
- Workshops (Public and Private)
- Learning spaces
- Library
- Auditorium/seminar room
- Staff and administration offices
- Print/copy enters

The project will endeavour to find different ways of exploring the relationship between the public, private institution, and the institution and the profession through the exploration of hierarchy and space, in order to achieve a more inclusive environment.
Site selection for this project became one of the most important decisions, because the context of the site is one of the determining factors for the success of the school.

The contextual complexity of Auckland CBD offered a challenge to connect and respond to a variety of factors including, different communities, scale, materiality and the outward image to the public.

The selected site was chosen for its four characteristics;

- Connections to the public on a physical level via the urban context.

- Surrounded by creative industries that have a positive influence on the schools community

- The ability to be connected to the profession through its context and physical relationship to surrounding firms
- Relationship to existing universities

Located on the western ridge of Auckland CBD the site is in the urban context yet it has the opportunity to connect the universities and CBD. The site itself occupies one of Auckland city's largest open air car parks, this unused space is to the west of the City Works Depot which houses many pop up businesses including, The Food Truck, Best Ugly Bagels, Three Beans, Odettes Eatery it is also home to many creative industries such as The Creative Store, Shout Media, iSite Ltd and Y&R NZ. The connection to these industries and small pop up businesses will have a positive influence on the successes of connecting both private and public through the exchange of knowledge and creativity.

In order to allow this exchange building will act as a gateway that is not intimidating or deemed a specialist space. Instead it will endeavour to be the open door into various communities within the school.
5.1 History of the Site

The site is most famously known for the sheds which the City Works Depot occupy, originally known as the Auckland City Workshops or the Nelson Street Workshops. They were designed by Ewen Wainscott “a man who was passionate about public buildings and helped shape Auckland city as we now know it”\textsuperscript{50}, he went on to become a qualified architect in 1967-1985.

The sheds served many purposes for the council “incorporating admin offices, alongside facilities for street and drainage repair, council vehicle garaging, electrical maintenance and laboratory investigation for water supplies. It also served as a Petrol Oil and Weighbridge Depot for council buses and vehicles”\textsuperscript{51}. The city council used the precinct up until April 1991. It was said to be “a fashionable place to hang out”\textsuperscript{52}. For many years the sheds were unoccupied. Due to of the vastness of the site international investors saw development potential, however plans never came to fruition. The owners of Tournament Parking bought the site in 2012. Today it is home to many businesses that have helped to preserve the depot’s history, a contributor to this is Nat Cheshire of Cheshire Architects whom alongside the city planners decided on a “no plaster-board” philosophy this has helped to define tenants appropriate to the precinct.

“People who would embrace the profiled steel walls, steel girders and columns flying through the spaces”\textsuperscript{53}

5.2 Context of the Site (Creative, Public, Profession, Existing Universities)

With the renovation of these spaces many business's found the depot a creative and interesting space to work, the council deemed this area the “Innovation Cradle” within the city centre master plan.

\textsuperscript{51} Ibid
\textsuperscript{52} Ibid
\textsuperscript{53} Ibid
“Nurturing the Innovation and Learning Cradle”

Figure 31 represents the Innovation Cradles that the council has targeted, the oval represents the learning quarter in which the University of Auckland, and the Auckland University of Technology sits. The site clearly sits within an innovation cradle, noted as Victoria quarter. Figure 32 represents how interconnected yet removed the site is in relation to the other Universities. This ‘removal’ from the surrounding universities is important when breaking down the boundaries between the public and private as people do not enter campuses without particular reason, their stay is not intended to be casual. Breaking down this hierarchy is one of the aims of this project.

One of the reasons for selecting this site is how interconnected it is to the architectural profession, figure 33 represents a top search of surrounding architecture firms. We can see the location of the site is in close proximity to

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Figure 32. Link between Universities

Figure 33. Architects in the surrounding area
many of them. This is important because students and professionals should be able to easily engage with one another on a physical level - at presentations and events.

5.3 Site Analysis

The following images will develop an in depth site analysis in its present state and will conclude with what needs to change for the project to flourish.

Figures 35-38 look at the site as it stands today as an open car park. These very crude images show the car as the main focus, this is a shame as the City Works Depot site is so successful at eliminating the car. This project provides an opportunity to focus on the people rather than the car.

A positive for this site is its sheltered nature, the incline to the east shelters the site from wind and noise from the surrounding busy roads (Figure 34).
5.4 Conclusions of Existing Conditions

Figure 35. Existing shed

Figure 36. Site Aerial
Figure 37. Car park: Shop fronts

Figure 38. ACC Buildings
Figure 39. Site Plan
Figure 40. Pedestrian entrance North

Figure 41. Gate W

Figure 42. Gate S

Figure 43. Morton Street

Figure 44. Pedestrian entrance through site

Figure 45. Pedestrian entrance South

Figure 46. Gate C

Figure 47. Site indicator
5.4 Conclusion of Existing Conditions

Figure 48-55 show how connected the site is in relation to its immediate context, vehicle presence through and around the site is noticeable, pedestrians try to merge with the traffic but this is largely unsuccessful and will be addressed by the project.

Because the site occupies the junction between Sales and Wellesley Streets it allows a great opportunity for public interaction (Figure 54 Street front activity). There is a disjunction between the neighbouring eastern site (City Works Depot) due to vehicle activity acting as barrier. Figure 48 shows the ring road that is typically used by vehicles on the site, the divide is apparent, causing this disjunction. Figure 49 demonstrates the elimination of vehicle activity between the two sites, this will create a pedestrian friendly zone acting as a threshold between the public and private.

Public interaction is vital to the success of the school and this engagement must be encouraged. Currently there are multiple pedestrian entrances throughout the site as shown in Figure 50, many of these are sculptural and entice people to use them. However, there is still a disjoint between the two sites due to the level change. The elimination of the middle stair (Figure 51. Pedestrian entrances - change), will provide an opportunity for a more cohesive exchange through the use of an architectural response. This will include the linking of the two sites to endeavour to provide a more open door approach to the entrance of the school as shown in Figure 52 and 53.
5.5 Environment On Site, Climatic Conditions and Sun Study

Currently the environment around the project site is semi commercial. The surrounding buildings are occupied by businesses such as fashion, hospitality, trades, film, TV, radio, recreation and small start-up businesses. The images to the right reflect some of the buildings and the environment within the surrounding area. The aesthetic of the buildings are robust and industrial, brick facades hide the function of many reducing the curiosity of the passersby. The project will aim to flip this and allow pedestrians to become curious and enticed into the building. The environment on site will be explored to enhance the idea of curiosity while also producing a building that functions within the climate of Auckland.

The following section will develop climatic design drivers for the project to function efficiently, while also taking into consideration the environment of the site.
Auckland’s climate is relatively moderate, the diagrams to the right show the average rainfall, temperature high and low, and humidity. It is known that all the seasons can be present in one day, however most consideration should be given to the humidity averaging at 82.3%. Most occupants will be “comfortable in a humidity level between 40-60%” in order to reduce the humidity the building should include design features such as:

- Passive ventilation (Cross ventilation)
- Correct insulation
- Windows on opposite sides of the room

As well as maintaining thermal conditions during colder months, it will take full advantage of the northern sun to passively heat it.

The site sits on a north south axis, both northern and southern ends are exposed to the climate. The east and west are sheltered as the site is wedged between two buildings. Because of this the project will need to take into consideration the predominant Sou West winds. As the sou west corner of the site is exposed it will use cross ventilation through the building to passively ventilate it.
The use of natural sunlight has many benefits not only for the occupants of the building but for the environment via the use of passive design\textsuperscript{56}. Natural lighting in architecture schools is important for students as they use the spaces 24/7, however two suitable types of passive lighting options can be employed.

Direct light - "lighting in which most of the light is cast directly from the fixture or source to the illumined area."\textsuperscript{57}

In direct light - "reflected or diffused light, used especially in interiors to avoid glare or shadows"\textsuperscript{58}

We can evaluate the daylight conditions on the site with consideration to neighbouring buildings. The following pages show diagrams of the impact of shadows between 6am - 6pm.

The studios and office spaces require indirect light, this can be controlled through design features such as louvres and overhangs. The atrium, lobby and crit areas can take advantage of direct light to enhance the atmosphere. The auditorium can be completely controlled via artificially lighting, and therefore can be placed underground or where dark spaces naturally occur (Southern end of building).
Figure 65. Sun Study 6am - 6pm
6.1 Functional Requirements

The building must function as an open gateway unobtrusive and not intimidating. It is a place of learning for its occupants and visitors. It will not been deemed a specialist place.

If you are curious - you belong
if you are interested - you belong

With the reversal of hierarchy between the institute and public, the building must be integrated with space to accommodate the public. Careful consideration must be given to the occupants as the intention is for them not to be on display.

Drawing from research into twenty-first century education and architectural education, several key issues emerge when breaking down the hierarchy of public and private space.
1. Showcasing the critique process to the public will educate them as to what students do, stressing the time and effort involved.

2. Integration of public space within the building, i.e gallery spaces that can be exhibited by surrounding creative communities, in order to draw public to the location.

3. The influence of public occupancy, and not putting students on ‘show’ - the issue of security and privacy.

4. Making public routes through the building not coincide with the private routes, and allowing the ease of access into public spaces.

5. Breaking down student staff hierarchy through the use of space.

The functional requirements can be split into three distinct categories - students and staff have access to the entire building.

**Public interaction/integration - spaces that the public can view and or participate in.**

- Atrium
- Open critique spaces
- Auditorium
- Entrances that link to public spaces
- Gallery

**Student use - Private spaces**

- Studio
- Closed critique spaces
- Storage space

**School use - Private spaces**
6.2 Design Drivers

The design drivers for this project were derived from research and the context in which the site is located.

Because of the integrated nature of the project the building must perform as transparently as possible to break down the exclusivity. Allowing the building to be approachable through the use of transparency can be architecturalized through the use of light and openness in specific places to enhance the relationships between public and private.

The building must benefit all communities involved in the physical sense and through education. Physically the building must not hinder, it must give more to its surrounding context and provide places and spaces for the public to engage in. These spaces must also provide an experience, whether this is explored via the individual or shown through the use of architecture.

Instilling curiosity and interest with the occupants and visitors through the use of sight, sound and activity will play a large role in the public spaces within. Being able to view multiple spaces and activities from one point will be vital for the success of interaction. Pedestrians must also be able to look into the building. Many of the surrounding buildings are inward looking and do not have a public front, this building will reverse this idea by providing an outward approach to design. As the site is naturally sunken horizontal planes will be used as vantage points in order to see the activity that occupies the space.
6.3 Initial concepts

These initial concepts were inspired from existing conditions on site, they do not take climate into consideration, these are indicative.

The images to the right had much influence over the models created in the following pages, and these words underline the thinking behind them.

**Solid - Triangular - Linear**
These three concepts are not dissimilar they have the same qualities however they respond in different ways to the context which results in different forms.

The folding and cutting of a 2D piece of card meant that each cut and fold became its own architectural form. The fold creates negative and positive space unknown until the final result, it is a generative process that is essentially experimental. The result was abstract and ambiguous until the cut and fold was placed onsite, it then started to respond to existing conditions. Open and close became a response to contextual relationships that had not yet been explored, as space emerges from the void but cannot exactly be defined, the task was to “Perceive and configure the space between the folds as actual space”\(^{59}\).

The result ended in shapes being ambiguous with much left to the imagination.

Because of the ambiguous nature of the cut and fold its relationship to context became undefined, explorations into site and massing became relevant to the organisation of space on the site in relation to existing conditions, including neighbouring buildings.

6.4 Conceptual Massing

At the start of the design process, “massing” became important in order to get to know the site and its relationships. It became apparent through this that two approaches could be taken.

1. The relationship towards City Works Depot
2. The relationship towards Sales Street

The site's triangular shape allows the building to respond to both, however one appears dominant over the other.

The following pages show some conceptual masses, the yellow line represents its intentional relationship to its surrounding context.
6.5 Initial Design

Mass eight was chosen for its connection towards City Works Depot and the public front towards Sales Street.

Figure 91-98 show the development of the mass towards a more finalised design. Figures 93-95 start to develop a response to the concepts above, cut and fold. As surfaces are triangulated and lifted to create overhangs as well as angles that respond to the sun. We can see this development more noticeably in the figures below.
Figure 91. Masses site
Figure 92. Application of prior massing
Figure 93. Pulling away from ground
Figure 94. Increase in roof height
Figure 95. Triangulated roof
Figure 96. Inserting core
Figure 97. Inserting two stairs
Figure 98. Slicing of floors x4
Concept three is combined with the mass chosen resulting in the image on the far right. The steel frame like structure was taken from the surrounding site, and is much like the entrances into City Works Depot, designed as a truss system to pay homage to the surrounding industrial buildings.

The buildings ground floor acts as a semi public space between the neighbouring sites. Occupying this space is the underground auditorium, gallery and open study/meeting areas to the south of the building. Entrances north, east and west allow easy access into these spaces.
Figure 100. Concept three developed

Figure 101. Concept three developed into building
Section One
Figure 104. Aerial
Figure 105. North East corner

Figure 106. North West corner
While the initial design responded to existing contextual relationships, development of the connection between these needs to be made in order for the public to engage physically with the built environment, by introducing transparency using sight, sound and activity.

A rethink back to design drivers is needed in order to respond to them correctly. The following images point out components of the initial design that need to be revisited to create a place to inspire the curious passerby.

The internal floor plates will also be reworked to break down hierarchies between students and staff, as well as combining the principles of twenty-first century education, which the initial design did not touch on. The following images are of those from the initial design and will indicate why these changes need to be made, and how to go about them.

In the image to the right there is no direct connection to the site from City Works Depot apart from visually. In order to develop the design a connection must be made for interaction to occur.

Explorations will include a ramp/bridge/gantry type connection to
the building, and the removal of the public stair that exists. This was talked about previously but did not eventuate into the design.
7.1 Visual Connection

Visual connection within the building is important for the designs open door policy, once inside the building one is meant to feel welcome. The initial design did not achieve this as anticipated. Below are two diagrams that explain the relationships between people when visual connection vertically occurs. A sense of openness is felt, and one is able to view what is happening inside the building.
Figure 110. Initial design, with indication of development
7.2 Hierarchy of Space

One of the aims of this project is to break down hierarchies in terms of space. Typically staff are segregated from students, the plan to the right (Initial design) although not fully thought out has a sense of hyper flexibility. This means singular spaces in which any kind of activity can occur. At a single glance this may appear to break down hierarchy however the spaces inside do not work efficiently because the spaces are not specifically designed. As there is no distinction between space and hierarchy, problems arise when trying to address public and private.

Therefore the developed design will put forward a new kind of flexibility, one that will break down barriers of hierarchy, through the application of compartmentalized flexibility. One where you identify a series of spaces you specifically design for - these are the spaces that we can predict with some certainty.

A revision of spaces and places that students occupy is necessary in order to rationalize the certainty of space. Studio, crit and auditoriums are needed and can be designed according to the idea of compartmentalized
flexibility.
The developed design will go further to explain the responses to the initial design.

It will reevaluate design drivers such as:

- The interaction between public and private
- Visual connectivity vertically and horizontally, beyond and within the building
- Breaking down hierarchies between staff, students and public through the plan, the notion of flexibility

8.1 Developing - Public and Private

The developed design goes back to initial design and its context, it takes the whole site as a footprint, it then develops from its contextual relationships.
The existing condition and contextual relationships of the site lends itself to have a public front on the northern and eastern corner of the site. This is where most of the public engagement can occur. The ground floor space will inspire curiosity and interest, it will also provide the public with an insight into architecture as well as architectural education. While these ground floor spaces may instil curiosity, visual connectivity from the ground floor throughout the building is vital to the success.

These ground floor spaces will be, but are not limited to;

- Gallery/Crit
- Auditorium
- Atrium

The following images are conceptual ground floor space diagrams, they are indicative, however they will give an overall sense of the direction the ground floor will proceed with.
Exploration one: develops a public front through the northern end of the site via the function of a gallery/crit space. Progressing south is the auditorium, the placement of this is specific to its lighting requirements. However the placement of the auditorium at the back of the building, may prove difficult to for guests to visit.

Exploration two: starts to combine public and semi private space (meeting/study) on the ground floor. The composition of an auditorium, meeting and gallery provides a guest with many different functions to look at. The auditorium in this plan is connected to the gallery therefore visiting guests will proceed through the gallery towards the auditorium.

Exploration three: is indicating that the auditorium will be elsewhere, most likely on the second level. This can be successful at bringing people into and through the building vertically.
Figure 114. Ground floor concept 2

Figure 115. Ground floor concept 3
Exploration two is chosen for its connectivity through public and semi public space, along with its connection between City Works Depot and the building itself.

It is then explored further through the development of connecting the two sites visually and physically.

8.2 Physical Connection to Context

The physical connection of the site to City Works Depot will be via the function of a ramp/gantry like structure. This will also act as the public entrance into the building and will give an architectural expression of what might be to come.

The images on the following pages start to uncover what this may look like, by taking inspiration from surrounding structures and successful places of public interaction.
Developed Design 103

Figure 117. Connecting the two sites physically
Figure 118. Wynyard quarter gantry, from below

Figure 119. Wynyard quarter gantry
Figure 120. Pedestrian stair on site, looking up

Figure 121. Pedestrian stair on site, looking side on
8.3 Creating public space between sites

Creating public space between sites can generate connectivity, however the site on its own does not have outdoor open space, so it is important to create a sense of nature in close proximity to the building.

It is also important for students to wander outside in order to have a real world experience, it can also break down the creative design block.

Within the City Works Depot site there is only one area to sit outside, drink a coffee and have a bite to eat - this is shown in Figure 123 - 124 (outlined in black Figure 122). Although this space is successful, with the influx of students, staff and visitors to the school, open outdoor spaces become crucial - as meeting points, or places of leisure. The white outline is where the project will propose to pedestrianize the area completely. Planting and seating will make the area more inviting, as well as giving places of shelter.
Figure 123. Existing covered area looking south

Figure 124. Existing covered area looking east
8.4 Visual Connectivity Into the Site

Visual connectivity into the site is one of the main design drivers for this project. A concept developed through the use of horizontal planes as viewing points into the building. Each horizontal plane in close proximity whether it is occupy-able or not is thought of as a viewing platform, this idea drove an exploration of visual connectivity into the site.

The diagram below shows the planes in section and how they cross over the site. The plane that crosses between City Works Depot and the site is the level where these two sites will engage.

Within the diagram to the right regularity between each plate is obvious, however a slight compression towards the top gives a sense of privacy. As this concept is abstract and indicative, room for change and development is necessary. Pushing and pulling of plates allows for more visual connectivity, and rotation of plates allows for more sunlight through the western and southern ends of the building. The following diagrams will explain this in an abstract sense, one in which is not finalized.
Figure 125. Diagram of horizontal planes
Figure 126. Long section looking West

Figure 127. Short section looking South
Figure 128. View towards building from City Works Depot showing Visual connection
8.5 Visual Connectivity Within the Building

Once inside the building, visual connectivity to multiple spaces must be achieved in order to create a sense of place. The lobby and atrium is the main place in the building where visitors can be inspired, by the architecture and visual connection to the internal spaces. Although visual connection can be achieved via the use of transparency, color and visual cues can encourage someone to look else where. Figure 129-130 are examples of this visual cue.

The main atrium space can also be used to exhibit sculptures through the use of suspension much like the red in figure 131.
Figure 130. Research and Training Centre in the Construction Trades, ACDI*

Figure 131. MAXXI museum, Zaha Hadid
8.6 Compartmentalized flexibility

In the diagram to the right a continuum of space is represented in the unbroken line, this is the notion of flexibility in which everything looks the same and can be used for different functions.

The same continuum is presented but broken up, this is the approach to compartmentalized flexibility.

Figure 134 shows the spaces that architecture schools have occupied for many years, therefore we can predict with certainty that these will not change. Flexibility here will be in the use of each space, much like the auditorium which will be designed to have multiple arrangements similar to Milstein Hall.

As the diagram, represents the ground floor will be completely open to the public however the progression of space towards the southern end of the building becomes less public as its function is for meeting/study areas.
Figure 134. Sectional space diagram, looking east towards CWD
8.7 Connectivity in plan

Ground Floor - The main auditorium, gallery and informal meeting/study areas are located on the site’s ground floor, all being accessible to one another. The gallery/formal critique space acts as a public front to the building; it is sunken into the ground two meters, while this provides a different viewpoint from ground level it also allows the occupants to feel encased, taking advantage and heightening the experience of the sunken site. This will be exhibited all year around by any creative industry and by students showcasing their work.

The ground floor will also have a relationship to the shop front level of City Works Depot, at this current stage the shops are occupied by businesses such as beauty and furniture. The project will propose to repurpose these in order to accommodate shops that will best benefit the school such as; book shops, printing center and workshops that will include 3D printing and laser cutting. These will not only be accessible to the students but also to the general public, allowing students to engage with people from different communities with different knowledge and ability.
First Floor - The first floor is split into multiple mezzanines, the primary public entrance from City Works Depot interacts with this level of the building, which overlooks the main gallery space into the lobby/auditorium area. This allows the public to view multiple areas at once and feel integrated into the school. The open administration is located on top of the sunken auditorium, as this is the main point of contact for visitors it will force them vertically through the building.

The first set of studios are also on this level, allowing people in the gallery and public ramp a first glance look at a studio space. This space is also located at the southern end of the building, this is to take advantage of the indirect light which is ideal for studio spaces.
Second, Third, Fourth, Fifth and Sixth Floors - The higher floors occupy the studios and staff offices. However, each year level is not split, mezzanines allow a segregation of space whilst providing view points throughout the building, encouraging students and staff to mingle. Informal Crit spaces are dispersed throughout the building allowing more privacy.
Figure 138. Third Floor diagram

Figure 139. Fourth Floor diagram
These floor plates are indicative of the spatial requirements for the institute. Much like modern learning environments that are flexible and open, the main studio crit and auditorium spaces will embody the same principles. Spaces such as studio which often instill an exclusive nature will employ spaces where people can engage beyond their desk, these spaces will be undefined and informal, and will encourage a sense of curiosity within the student. This may be a view beyond their desk or a space which enables them to experience and engage with other people.

Two types of critique spaces will be available one that is formal, clean and unobtrusive, this will be the indicated gallery space where students work will be exhibited to the public. Informal critique spaces will be scattered throughout the building, and are for any student who desires to use them. These are spaces that are impromptu, have minimal seating and can be influenced by students. They are about getting students to collaborate in an informal way to exchange knowledge.

Although these spaces are similar to what is seen today, they will embody all the principles outlined within the Design Incubator. It will share common themes such as flexibility and will offer spaces that inspire people to connect in different ways. This will prepare the next generation of architects for the workforce by creating an environment that facilitates connections that help encourage curiosity and innovation.
The primary outcome of this study is in the form of an architectural response to the research question;

*How can an architecture school redefine its image as a place to inspire its students, staff and the surrounding community, combining twenty-first century learning techniques to enrich the learning provided and encourage public involvement?*

The initial response before research was undertaken, was one of an ambiguous nature attempting to reinvent architectural education. Thorough analysis into the subject revealed that there was no need to try and replace the system as it works very well, producing architects which we have come to love and respect. The research presented led the project to redefine the image of architectural education as a place to inspire its students, staff and community, as well as forming new relationships. In order to do so, a revision of the existing context of architecture schools was employed and revealed the exclusive nature of the campus, whereby community and professionals could
not impart their knowledge easily. Therefore the relationships between the institute, industry and community needed to be challenged and the context in which the institute was located, became one of the defining features of the project.

The urban context became a desirable location for new relationships to flourish, it broke down the traditional hierarchy of the university campus and allowed people to engage and interact within the institute. This context also provided a new platform for students to explore, walk outside and have chance encounters with people who are like minded or indifferent. It also challenged the institute to form new relationships while still maintaining existing ones within the chosen location.

The Design Incubator has helped to rethink the place in which the next generation of architects will be nurtured, it becomes the forum for the acquisition of new ideas, and the exchange of new knowledge, while creating an environment that facilitates and connects innovative ideas from concept to reality.

In order to realise this an exploration into the fundamentals of today's modern learning environments were explored. The design coupled existing knowledge about architectural educations core spaces, while combining the inclusive nature of modern learning environments open door approach.

What this building attempts to do is to provide maximum opportunities to nurture new knowledge, innovation and creativity, while attracting, retaining and promoting architectural education within the urban context. The Design Incubator provides students, professionals and the community with a forum, and provides students with a glimpse of where their future may take them.

Future directions for this research project would be to investigate the boundaries between the core spaces, studio, crit and auditorium. If these boundaries are understood can we then break them?
Deductive reasoning: is a logical process in which a conclusion is based on the concordance of multiple premises that are generally assumed to be true. Deductive reasoning is sometimes referred to as top-down logic. Its counterpart, inductive reasoning, is sometimes referred to as bottom-up logic. (Rouse, Margret. "Deductive Reasoning." WhatIs.com. May 1, 2013. Accessed April 22, 2015. http://whatis.techtarget.com/definition/deductive-reasoning)

The Knowledge Age is a new, advanced form of capitalism in which knowledge and ideas are the main source of economic growth (more important than land, labour, money, or other ‘tangible resources). New patterns of work and new business practices have developed, and, as a result, new kinds of workers, with new and different skills, are required. (NZCER. "The Knowledge Age." Shifting to 21st Century Thinking in Education and Learning. Accessed April 23, 2015. http://www.shiftingthinking.org/?page_id=58.)

Passive Design refers to a design approach that uses natural elements in order to heat, cool or light a building.
Bibliography


Crimson, Mark, and Jules Lubbock. Architecture—art or Profession?: Three Hundred Years of Architectural Education in Britain. Manchester, UK: Manchester University Press, 1994


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Full name of author: Brendan Treving

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