WHAT FACTORS BECOME PRIORITIES IN THE DECISION-MAKING PROCESS THAT INFLUENCE ADMINISTRATORS OF CAMPUS SPACE TO CHOOSE ONE TYPE OF GENERAL-USE CLASSROOM OVER ANOTHER?

by

Marilyn Teitelbaum, B.A.I.D., M.A. (Ed)

A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
Department of Leadership, Higher and Adult Education
Ontario Institute for Studies in Education
University of Toronto

© Copyright by Marilyn Teitelbaum 2015
WHAT FACTORS BECOME PRIORITIES IN THE DECISION-MAKING PROCESS THAT INFLUENCE ADMINISTRATORS OF CAMPUS SPACE TO CHOOSE ONE TYPE OF GENERAL-USE CLASSROOM OVER ANOTHER?

Doctor of Philosophy 2015
Marilyn Teitelbaum
Leadership, Higher and Adult Education
University of Toronto

Abstract

Current best practice education and design research indicated that flexible general-use teaching spaces, not inflexible row-and-column classrooms, improved student success. Research indicated inflexible classrooms inhibited progressive models of pedagogy by discouraging active learner-centered methods. The focus of this study was the inflexible general-use classroom that was the standard method of teacher-centered education. In this qualitative exploratory, descriptive case study I interviewed administrators in three Ontario Colleges of Applied Arts and Technology who were in various ways responsible for the ‘delivery of classrooms’. I extracted factors that influenced the decisions of participants to prioritize the inflexible classroom model and looked for reasons why the transition to supportive flexible space had been slow to emerge. Factors that stalled space changes included issues of space utilization, faculty preference, technology fatigue and effort. I also explored the colleges’ historic use of inflexible classrooms, the characteristics that have maintained their use and barriers that have prevented change as well as the historic and current environmental context in which decisions about classrooms are made. The results show that administrators, for the most part reflect their learner-centered Strategic Plans. However, I discovered a gap in their understanding that inflexible teacher-centered classrooms support one pedagogy model where learner-centered pedagogies are supported by
physical spaces that promote flexibility and movement. To ensure inflexible classrooms remained, administrators repeated factors containing misinformation that supported the single priority; to make the most of funding through maximization of space and schedule. Slow transition through insufficient momentum was possible because administrators did not have the design experience or skills to know better. They formed alliances and used factors to argue for the continuance of the row-and-column general-use classroom. This continuance was most evident in two of the three subject colleges. One college in the study was contemplating change while the other two were not. Emergent results showed that although best practices in design and education provided evidence that change from inflexible to flexible general-use classrooms could improve student success, environments continued to adhere to the historic standard row-and-column configuration. I hope to create the momentum for change from inflexible to flexible environments required leadership.
Acknowledgements

To colleagues, friends and family, thank you for your unwavering support.

To Peter Dietsche and Katharine Janzen, you are gifted scholars. Thank you for your guidance.

To my husband Stan Teitelbaum who is an incredible person. Without you nothing is possible.
Table of Contents

Abstract .................................................................................................................................................. ii
Table of Contents ..................................................................................................................................... v
   Tables ................................................................................................................................................ x
   Figures ................................................................................................................................................ x
   Appendix .............................................................................................................................................. xi
Chapter One: Introduction ...................................................................................................................... 1
   Background of the Problem .................................................................................................................. 2
   Statement of the Problem Situation ..................................................................................................... 5
   Purpose of the Research ....................................................................................................................... 8
   Rationale and Significance of the Study ................................................................................................. 12
      Researcher’s rationale ....................................................................................................................... 16
   Significance of this Study ..................................................................................................................... 19
   Research Questions ............................................................................................................................. 21
   Theoretical Framework ......................................................................................................................... 22
   Conceptual Framework ......................................................................................................................... 25
   Scope and Limitations of the Research ................................................................................................. 29
   Summary and Outline of the Rest of the Chapters .............................................................................. 30
      Terms and Definitions ....................................................................................................................... 32
Chapter 2: Literature Review ................................................................................................................. 37
   The Classroom....................................................................................................................................... 37
      The classroom documented in photos. ............................................................................................. 37
      Operational view of the classroom. ................................................................................................... 47
      Classroom as a model ....................................................................................................................... 50
   Ontario Classrooms ............................................................................................................................. 53
      The origin of the classrooms on Ontario’s campuses................................................................. 53
      The attitude of generations. ............................................................................................................. 54
      Standardizing classrooms. ............................................................................................................... 60
   Effective Classrooms Prompted by New Thinking and Innovation ................................................... 75
      More than cosmetics....................................................................................................................... 75
The practice of providing space that matters. ................................................................. 272
Policy and expertise............................................................................................................. 273
Practice and expertise. ....................................................................................................... 273
Facilities Planning department practices. ........................................................................ 275
Practice and policy with no change. ................................................................................ 277
Implications ....................................................................................................................... 280
Inter-institutional differences. .......................................................................................... 280
Problematic governance policies. ..................................................................................... 284
The teaching community. ............................................................................................... 287
Consideration that space mattered. .................................................................................. 290
Implications of the continued gap. .................................................................................. 290
Further research studies ................................................................................................... 292
The development of design studies. .................................................................................. 292
Policies processes and procedures. ................................................................................... 294
Recommendations for Change .......................................................................................... 299
Change. ............................................................................................................................. 300
Change limited professional development. ....................................................................... 301
Summary of Chapter Five ............................................................................................... 307
References ......................................................................................................................... 312
Tables

Table 1 ............................................................................................................................... 130
Table 2 ............................................................................................................................... 141
Table 3 ............................................................................................................................... 143
Table 4 ............................................................................................................................... 189
Figures

Figure 1. The standard inflexible general-use classroom ................................................................. 7
Figure 2. The visual aid; two classroom model types ........................................................................ 15
Figure 3. The personal resources system management platform ..................................................... 27
Figure 4. The problem with the current governance structure ........................................................... 28
Figure 5. The resolution for the governance structure ...................................................................... 29
Figure 6. The Sumerian classroom .................................................................................................... 38
Figure 7. The medieval learning setting ............................................................................................. 39
Figure 8. A general-use classroom from the early 1970's .................................................................. 40
Figure 9. A general-use classroom from the early 1970's .................................................................. 41
Figure 10. A newly renovated general-use classroom within an old campus building ................. 42
Figure 11. A newly renovated general-use classroom within an old campus building ................. 42
Figure 12. A general-use classroom in a new college building ......................................................... 43
Figure 13. A general-use classroom in a new college building ......................................................... 44
Figure 14. A general-use classroom in a new college building ......................................................... 44
Figure 15. Classroom time sequence 2007 pre-change ................................................................... 45
Figure 16. Classroom time sequence 2007 post change .................................................................. 46
Figure 17. General-use classroom time sequence 2012 – reversal .................................................. 46
Figure 18. Sequential method design ................................................................................................. 134
Figure 19. Design and teaching experience for all interviewees (n=16). ........................................... 189
Figure 20. College interviewees with design and teaching experience. .......................................... 190
Figure 21. External Expert interviewees with design and teaching experience. .......................... 190
Appendix

Appendix A – Matrix................................................................. 323
Appendix B - Letter Requesting Administrative Consent.............................. 343
Appendix C - Informed Consent Letter................................................ 345
Appendix D - Informed Consent Letter Requesting an Interview...................... 347
Appendix E - Interview Guide; College Informants................................. 349
Appendix F- Interview Guide; Government and Education Specialist.............. 351
Appendix G - Interview Guide; Designer and Manufacturer/Dealer.................. 354
Appendix H - Thank You Letter for All Participants Wishing to Withdraw......... 356
Chapter One: Introduction

“If we teach today’s students as we taught yesterday’s, we rob them of tomorrow”

John Dewy
1859-1952

This study was about the discovery of factors that become priorities in the decision-making process that influence administrators of campus space to choose one type of general-use classroom over another. The outcome of this research was to identify a problem with physical space that does not easily facilitate current pedagogies. The benefit of this study was to contribute to the growing knowledge base and to support students who deserve the best physical environment for teaching and learning. This study hypothesized that factors coloured the decisions of administrators resulting in decisions about brick and mortar education space. The goal was to discover the factors that influenced these decision makers to prioritize and choose one type of classroom over another. To that end this study looked for factors that were founded in evidence based in literature and evidence based within the physical reality of campuses. Evidence based in literature lead to question why, in spite of best practice evidence that demonstrated flexible classrooms positively affect student success, did inflexible classrooms continue to be part of college campuses? As well, upon examination of college campuses, this study explores why inflexible general-use classrooms remain a significant part of college campuses (Bickford & Wright, 2006; Lackney & Jacobs, 2002).

There was one overarching purpose for this study supported by the research of others, and that was to discover why the use of inflexible general-use classroom space continues to be predominant in educational institutions, rather than flexible classrooms that would enable educators who want to use multiple learner-centered teaching practices (which the literature
review indicated would benefit student learning) is not happening (Bickford & Wright, 2006; Lackney & Jacobs, 2002; Painter et al, 2013, and Felix & Brown, 2011. However, there were multiple sub-purposes. One was to frame research questions and guide data collection. The overarching and sub-purposes of this study are presented in detail in Methodology chapter three.

**Background of the Problem**

Classrooms that are in the row-and-column configuration have deep roots in history. In the Euphrates Valley in Mesopotamia a 4,000 year old row-and-column classroom was discovered (Cole, 2005). One cannot say it was an isolated example as my research discovered a fresco painted in 1350 by Laurentius de Voltolina depicting Henry of Germany delivering a lecture to university students in Bologna (Diener, 2009). Henry of German is delivering his talk to students who are positioned in four rows facing forward toward the lecturer. The students in each of the rows are shown acting in ways that are familiar to educators who find themselves in the inflexible row-and-column classrooms of today. The students in the front row are all listening intently while those in the rows behind are seen looking around, talking with each other and sleeping (Figure 7, p.39).

The background of the problem that became my journey into discovery began when I transitioned from an interior designer to an educator and noticed a disconnection between active learner-centered teaching methodologies and the physical accommodation needed to support flexibility within general-use classroom spaces. As an educator I was placed into inflexible classrooms that were purposed for generic teaching that were not unlike those of Mesopotamia or Bologna. The outcome was challenging in that I noticed a conflict between learner-centered practice and teacher-centered space. I could not move my students around in the classroom as the furniture and fitments did not easily accommodate quick reconfiguration and flexibility. To
explain further, I utilized teaching techniques incorporating several current theoretical models that included problem-based learning and flipped learning. The use of these models required that all occupants within the space move freely around the environment. The flow of instruction became an obstacle because the tools that were the rows of chairs and desks plus the orientation of the information screens could not easily move to accommodate other education experiences. Being an interior designer made me acutely aware of how inflexible the row-and-column general-use classroom format was, and how it resisted any change made by the occupants other than for which it was designed. The name given to the type of learning space that I taught in was the general-use classroom. I noticed that this type of physical space was used throughout the institute where I taught and I questioned why it dominated when my design background indicated that other classroom configurations were better suited to accommodate all models of instruction.

A component of interior design is research and so I conducted a preliminary study of the general-use classroom in order to discover why it dominated the campus where I worked. What I discovered provided grounding for the problem that became this thesis topic. I had trouble teaching in this type of classroom. The relationship with the inflexible teaching environment ignited my curiosity as I went forward to discover the inherent problems with trying to teach using learner methodology within inflexible general-use classrooms. I noticed that general-use classrooms were closely copied from the Ontario high school classrooms where I had been taught. The stagnant form determined its limited use as the teaching environment that I remembered as a pre-college student and this led me to question why this space was in use for higher education. The following briefly describes the general-use classrooms within the context of preliminary research that was the background to this study.
The space type that is the general-use classroom was well suited to its name as the environment was identical to the configuration used in high schools of the day and at the time it was easily replicated and embedded into the Ontario colleges built in the 1960’s (Gillett, 1966). The classroom was best known to demonstrate two characteristics. One was its physical format, which was designed for the accommodation of a wide range of college programs. The other was its service to the institution that was to provide broad scheduling opportunities for a multitude of varied college programs. These classrooms were designed at a time when the central focus of teaching environments was the division between the front and back of the room with all student eyes firmly implanted on the teacher, when pedagogies were less diverse, when students were controlled with minimal interaction and when technology as we know it today did not exist (Painter et al, 2013). The general-use classroom was designed and implemented into college campuses at a time when the most challenging piece of technology was the overhead projector (Gillett, 1966). The intent of the inflexible general-use classroom was to service many programs that at the time were limited to a teacher-centered education model. Servicing a multitude of programs required the adherence to a rigid scheduling system under the supervision of the Registrar (Delprino, 2013).

The background of the problem that I studied included the reality of teaching students today. Perhaps the inflexible general-use classroom worked well for its day but as an education community we now realize the new paradigm in education that is upon us. It was best practice research that informed educators that emerging pedagogies, rapidly growing technology and the growth in understanding of how teaching affects the brain created a need for new physical environments that supported differing structural models for teaching and learning. New factors driving change have emerged from behavioral studies focused on teaching. They have emerged
from literature and case studies to include a new focus on collaborative team-based pedagogies that have changed the way we develop our courses. The outcomes of new teaching and learning models have identified the need to replace the inflexible general-use classroom with a flexible learner-centered model (Painter et al., 2013). Within this research were two new concepts; one concerning teaching using best practices and the second, the movement toward change to flexible classrooms that support learner-centered modes of teaching. My investigation of college spaces uncovered that flexible general-use classrooms should have changed the campus landscape but change was not apparent. Further the research of others identified that this was the same in many other colleges, in that if change to classrooms was happening it was at a very slow pace (Scott-Webber, 2012a). Thus my curiosity was peaked in that I wanted to know why general-use classrooms were not changing to accommodate learner centered education models that promote student success (Bickford & Wright, 2006; Lackney & Jacobs, 2002). I determined that it was many factors that established priorities in their decision making process that influenced administrators of campus space to choose one type of general-use space over another.

**Statement of the Problem Situation**

The thesis problem was: in spite of best practice evidence that positively demonstrates flexible classrooms affect student success, inflexible general-use classrooms remain a significant part of college campuses (Bickford & Wright, 2006; Jeffery Lackney & Jacobs, 2002).

The genesis of the problem situation was the product of observation and participation as seen from my dual design/education perspective. It was from this perspective that I experienced an imbalance between learner-centered pedagogy and inflexible classroom spaces that did not support active learning models. My experience in the classroom was confirmed by the research
of others who like me found it difficult to teach within the rigid boundaries of the inflexible classroom (Felix & Brown, 2011).

Along with physical difficulties I noticed there was a discrepancy in the weight of importance between space and pedagogy. When discussing classroom types the weight of importance was an apt description of the issue concerning the weight that administrators of campuses placed on learning theories, versus the weight that administrators placed on providing physical structures needed to support the theories. My experience was that colleges placed great importance upon the use of learner-centered pedagogy but decisions to alter hierarchic general-use classrooms appeared to be superseded by factors that maintained its traditional physical composition. As a researcher with dual experience and training I believed that pedagogy and space carried equal importance and that one supported the other. My focus considered that there was sufficient evidence, based on research that clearly demonstrated that both pedagogy and space were mutually important (Felix & Brown, 2011).

The specific space that was and remains the physical environment explored in this study was the general-use classroom that has continued to retain its hierarchic inflexible configuration because of its static configuration and use of tools that are the chairs, tables and vertical information surfaces. The operation of this general-use classroom space has been described as a factory model whose physical environment supports its singular hierarchic pedagogical teaching methodology (Taylor, 2009).
The figure, courtesy of Steelcase Education is a graphic example of a standard inflexible classroom described by Taylor as a factory model classroom (Figure 1). This depiction of a standard, inflexible general-use classroom was designed to support rote and teacher-centered education. The tools employed in this model were chairs, tables and visual aids that were hard to reconfigure without considerable effort making learner-centered teaching difficult if not impossible. Chapter two provides a historic account of this space and describes why it functions as an inflexible row-and-column classroom environment.

As an interior designer it was tempting to define solutions to this problem situation, to develop drawings of my own and give my input concerning how to facilitate new spaces. However, I have resisted providing my own solution and to that end this study does not reflect my design changes to the general-use classroom space. Instead, I have touched upon the design
concepts and ideas of others who have designed spaces that support learner-centered classrooms. Practical design solutions to this problem are found in the case studies in Chapter two.

**Purpose of the Research**

Best practices found in literature and case studies have informed us that students experience greater success in learner-centered environments. The purpose of this research was to seek out and find factors that become priorities in the decision-making process that influence administrators of space to choose one type of general-use classroom over another and by so doing help explain why rapid change to general-use classrooms from teacher-centered to learner-centered spaces has been slow to happen or has not happened at all. The outcome of discovery was to add to the existing body of knowledge in that this study would work with the research of others to create momentum for change to teaching environments designed to benefit students. However, support in the form of advocacy for better classrooms and student success does not include my voice alone but the voices of other researchers whose studies have indicated outcomes to include student success that can be achieved by changing inflexible classrooms to flexible classrooms (Neil & Etheridge, 2008; Kim & McNair, 2009; Lopez et al, 2009; Mandarino & Mattern, 2010).

According to Creswell (2009) a description of this type of research included the advocacy/participatory worldview that he said, “advocates for an action agenda” (p.9). To further explain, research of this kind was conducted to benefit marginalized peoples who struggle under imposed laws and theories placed upon them. They are people who cannot help themselves and require others to speak for them. To that end I see the constant and continued use of the inflexible general-use classroom as a form of imposed law with misplaced theories. The action agenda undertaken in this study was to provide a voice for students who I believe for the most
part do not know better and additionally do not have support that is strong or loud enough to force change. For these reasons students require someone that will conduct research, will add to the existing body of knowledge and will provide momentum to change learning spaces that are of benefit to their educational outcome. To prepare the groundwork I had to define the purpose for this study and I considered the following; first, to understand what traditional hierarchic general-use classrooms were and second, to understand the history of how these classrooms came to be. The third was to understand what was driving the need for change and the fourth and last was to understand the possibilities for improvement.

To identify the focus of my study, I had to fully understand what other researchers had done. This required that I examine the outcome of case studies of college and university learning environments that had changed their education spaces from inflexible to flexible. I needed to understand their transformation in order to fully realize the benefits that support learning initiatives that benefit students. Chapter two provides examples of case studies whose focus was the transformation of classrooms from traditional hierarchic spaces to flexible learning-centered spaces resulting in benefits to teaching and learning. They declared that there were and continue to be good reasons for change from traditionally configured hierarchic general-use classrooms to flexible learner-centered general-use classrooms designed to benefit students. I discovered that flexible classrooms changed teaching environments that physically supported more effective education pedagogy and in turn fostered some student success. Researchers also indicated that a positive change to flexible classroom space was necessary to catch up with current changes in our lives, to enable classrooms that were able to physically support rapid advances within the technology spectrum. This research study sought out positive influences, but also studied possible negative factors framing administrative attitudes that might explain why inflexible
classrooms appear to be frozen in the past.

Factors that become prioritized decisions to maintain inflexible classrooms evolved from my concern for students, who I believed were looking to break from the historic precedent of physical regimentation in the classroom. They were looking for the latest technology, but not just technology alone, in that they were also looking for a change to their physical learning environments as well. Seeking factors that emerge from data analysis included the consideration that in spite of the passage of time, renovations and new construction have made only minor enhancements to the inflexible general-use classroom. For example, the replacement of the old chalk black board, with the green board, and then with the white board were not meaningful improvements to teaching at all. And so I looked for factors that emerged from interviewees that were comfortable with technological change and those that were not. To seek factors that become priorities one need only reflect back upon drivers of change between 1960 and now to appreciate just how rapid change has been. In the 1960’s, a hand-held computer that fit into a pocket was unimaginable. Now students download texts, tweet and view videos using their mini devices. Laptops, hand-held phones and work pads are not futuristic Star Trek gadgets any longer but are common mainstream personal tools. Looking forward, current generations can only guess what future devices will be.

I considered that constant changes created new opportunities for colleges to build new spaces but I also considered that upgrades to accommodate these changes might come at a cost that administrators felt was too high for their budgets. The purpose of this research study was to explore whether entropy because of the passage of time, and upgrades due to the pressures of providing technology, had a negative effect in that they presented costly challenges to campus infrastructures. For example, entropy was and continues to be a constant battle for campus
buildings constructed in the 60’s (Swan, 2010). New electronic devices demand expensive and extensive power infrastructure that was unimagined in the 1960’s. Entropy combined with the demand for renewal has placed enormous demands on limited government funding to colleges. Michael de Jocas from Educational Consulting Services Corp (E.C.S.) commented on these issues in his opening letter dated July 19, 2006: ("When efficiency becomes a liability.," 2007, p. 1)

I did not exclude the exploration of factors that identified the preference to fund specialty areas like labs and workshops that have continued to renew and grow while general-use classrooms have remained unchanged. Long & Holeton (2009) comment, “…the fact that they [general-use classrooms] remain challenges hints at a larger failure to transcend the industrial model of education, the model that characterizes the vast majority of students’ experience on contemporary college and university campuses” (p.36). In spite of the passage of time this space has retained its original appearance where others have been modified to suit new uses. The pattern and most specifically the tools used within this space continue to be replicated with the same tools and thus general-use classroom continue to be the default setting creating a typical standard for general-use classrooms. An additional purpose was to explore whether the effort needed to change classroom types might emerge as a factor that prioritized decisions to choose one classroom over another.

Ideally I would like to see colleges break away from the historically designed classroom immediately as I believe the impact on students should be “revolutionary rather than evolutionary” (McFall & Beacham, 2006, p. 21). To that end the purpose of this study was and remains to be, to add to the growing body of knowledge about the benefit of flexible classrooms and to create momentum for change that will benefit students.
Rationale and Significance of the Study

This section of chapter one examines the rationale and significance of this study and is framed by first explaining the words chosen followed by the graphic examples that establishes a context for the two components. What follows is my rationale as explained by my observation of the problem. I comment upon active and non-progressive movements as rationale for maintaining space types. This section also contains a hierarchy of reasons to conduct this study and it concludes with the significance of the research.

There was a rationale for choosing specific words aligned with graphic images that define this study in that they have significant meaning. This research study was designed to allow factors to emerge from data and to discover how administrators use them in their decision-making process to determine general-use classroom space types. When discussing this research with others I discovered there was a gap in understanding the exact meaning of my visual and verbal language. The gap formed a misunderstanding for others when describing the rationale and significance of the study to them. Thus a clear understanding of both verbal and visual components was needed to fully comprehend the rationale and significance of this study. The following defines the words and graphic components used.

The choice of words and phrases used in this study was important to understand as words framed a common meaning. The rationale for this research study was to search for factors that lay hidden within interviewee conversations and to discover how administrators use these factors in their decision-making process to determine general-use classroom space types. I defined my meaning of the word *factor*. When used as a noun it was considered an element or piece of information contributing to a result of some kind. To that end this thesis looked for various pieces of information that when combined contributed to the decision-making processes of
administrators of campus space. This study explored how these factors resolved issues and framed priorities for administrators who made choices about space types.

I defined a priority as *the most important consideration* that must be dealt with first. When the word *priority* is plural, the meaning changes slightly to mean, looking for many *things* or pieces of information. To that end, this thesis explored many factors that were appropriate to the focus of this study. Factors were considerations that administrators prioritized and used as a basis for their decisions that were about whether to choose one type of classroom space over another. When listening to interviewees and when analysing data I needed an understanding of what I considered to be factors so that I could define their significance when forming discoveries.

The choice of graphic instrument used as a visual aid was important to this study. Early exploration into this topic provided feedback from others concerning the two classroom model types. I discovered that my reference to the word *classrooms* was enough to confuse. Consequently, I developed a visual aid to define my meaning to my audience so that they were able to understand the difference between the two classroom types. The visual definition was inclusive of walls as well as furniture tools that made up the interior of the spaces.

The rationale that foresaw the need to use a graphic storyboard came from the historic view of this space. The traditional general-use classroom was also known as the industrial model because techniques used to develop inflexible classroom space conformed to method of development similar to an assembly line using mass production (Taylor, 2009). It is said that the processes were like forging or beating space into the same shapes by a team of college administrators that were not collaborators who valued input from the users of the environments. The development of teaching spaces were the solidly entrenched visions of the administrators who produced spaces that had little or nothing to do with pedagogy (Long & Holeton, 2009).
Britnell, Andraiti and Wilson (2012) concurred and add, “Traditionally, space planning has excluded the key stakeholders-instructors and students-until the very end of the sequential design process” (2012, p. 1). That is, students and instructors were excluded until the end when input from them was about the number of students to be accommodated in the space. The aforementioned was the unchangeable perception of the classroom setting that I realized needed visual definition in that my audience could not visualize alternative solutions.

The visual aid that I developed was the instrument that framed my rationale by forming the picture of the physical definition of the two classroom types in that there was no mistake, there could be no other space considered but those depicted by the graphic. The visual aid became a significant instrument reinforcing the rationale for this study, as I understand not all people saw space as I did. Like Temple Grandin, I think in pictures and have a heightened awareness of physical space (Grandin, 2006). Although I am not autistic I am aware of the difference between those who think in pictures and those that do not and to that end I attributed a gap in understanding what a classroom was with the inability to connect space with teaching theories. The rationale for producing the visual aid was to ensure my targeted audience verbally and visually understood my reference and to ensure there was no confusion with other spaces models (Figure 2). A further rationale for producing the graphic was to point out the existing space type (the inflexible general-use classroom) and to suggest a new space type (the flexible general-use classroom). The two models included the graphic of each respective teaching room as well as the typical furniture that can be found in each of the spaces.
Figure 2. The visual aid; two classroom model types

Source: Use of these images and information is courtesy of Steelcase Education, 06/09/2012.

The model on the left denotes the inflexible general-use classroom with tools that are chairs, tables, the technology podium, projector and visual screens. The illustration depicts tools that are commonly found in classrooms. The model, on the right is a design with suggested tools that are a mobile seating/table, mobile visual screens and a technology stand for a flexible general-use classroom.

The visual aid was an illustration with the purpose of acting as a storyboard. The graphic titled Classroom Model #1 was the inflexible general-use teaching standard. The graphic titled Classroom Model #2 was a suggestion for the flexible general-use classroom model. The furniture tools used in both scenarios were also identified in the visual aid. Classroom Model #1 indicated the current use of common tools (four-legged seats, work surfaces, vertical writing surfaces and technology) that were and continue to be permanently fixed into an inflexible
classroom. Similar tools (seats on castors with swivel chairs, work surfaces, vertical writing surfaces and technology) were indicated in Classroom Model #2. These tools were selected because they were completely flexible and freely moved around the space.

**Researchers’ rationale.**

This study began with my observation of classrooms where I taught and where I noticed two contradictory practices supported by theories of Pascarella and Terenzini (2005) who cite other researchers including Smart et al. (2006). These researchers agreed that physical environments influenced students as did pedagogy within socially structured environments. However, what I observed was pressure on faculty to adopt learner-centered methods of pedagogy, the contradiction in theory was a lack of physical support within classrooms needed to implement learner-centered methods. That is, general-use classrooms were not pliable enough to allow for flexible movement, in that inflexible classrooms retained their hierarchical rigid structure resisting change toward flexibility.

Opposing theoretical background and practices were described as important components in the development of scholarly qualitative research (Creswell, 1998).

**Active movement; learner-centered pedagogy.**

I observed that in colleges in Ontario there were active movements being promoted by departments called Centers of Learning and they ensured faculty members were aware of a variety of pedagogy types with emphasis on active learning models. All new full-time faculty were required to participate and learn about new pedagogical methods to ensure these took hold. These classes were my experience as a new faculty member at a college. The sessions were built around the college’s progressive learning-centered views. Further evidence of college learner-centered views was observed when I toured college websites. I discovered that a few of the
colleges in Ontario were members of the League for Innovation whose focus was the promotion of best practice learning objectives (League, 2013). I also noticed that Ontario colleges worked together with Johnson County Community College and the Dallas County Community College District who collectively contributed to LENS (Learning Exchange Networks), which provided materials for community college faculty (Humber, 2013). The materials were important as their focus was instructional learner-centered teaching methods for colleges.

*The problem; learner-centered pedagogy but teacher centered space.*

Clearly, some colleges in Ontario were actively pursuing and promoting new models of teaching. However, based on my observation of campuses, teaching spaces were not learner-centered but were teacher-centered. These two opposing practices directed this research study.

*Non-progressive; the inflexible classroom.*

In the college where I began my teaching career I observed an active movement to ensure general-use classrooms retain their rigid hierarchic inflexible format. My experience with teaching in inflexible general-use classrooms was that they were non-supportive of all teaching methods. Tools such as desks, chairs, technology equipment and wall mounted writing surfaces within inflexible general-use classroom spaces, inhibited the use of other progressive pedagogical learner-centered methods (Dwyer et al., 2008; Taylor, 2009; Teitelbaum, 2011; Temple, 2009).

I observed and experienced that inflexible general-use classrooms inhibit active learner-centered training of faculty. The continued uses of these environments were contradictions of the goals of the institutions desire to be learner-centered in that progressive, learner-centered teaching pedagogies require supportive and flexible learning environments.
**The hierarchy of reasons.**

A hierarchy of reasons ranging from pragmatic to passionate and emotional framed the rationale for this study. At the bottom of the hierarchy was the most pragmatic reason for conducting this study. It was framed by my dual background in education and design. I recognized a design problem; when I tried to teach within an inflexible classroom using any method other than the teacher-centered model I had trouble functioning in the space. The tools and the configuration of the space were not flexible enough. The second reason for this study was framed by my attempts to explain the problem to others. When I tried to explain flexible space to administrators I noticed they had trouble following my reason for changing the classroom and I had difficulty understanding their rationale for keeping inflexible spaces. I observed there was a gap in understanding what I considered a problem between physical space and its direct effect on pedagogy.

I considered the gap might be a factor founded in the lack of research available. I considered administrators might not have read about the connection of space and the ability of appropriate space to support teaching. That said, in my early research days I was unable to clearly isolate and articulate exactly what the gap was. As I developed this study the gap in understanding the connection of physical space with teaching theories became more defined. I discuss the importance of understanding the gap further in chapters two, four and five.

The highest of my priorities was my passion to be the best educator I could possibly be. To that end I wanted to fix something I knew was wrong. I realized I could be more effective by practicing learner-centered teaching in a flexible classroom. I could do this by changing the structure of desks and chairs from inflexible to flexible. I had discovered that in my Master’s study. However the most noteworthy contribution of this study was not overlooked as I
considered my study could help other educators achieve greater success by changing classrooms from inflexible to flexible. This change could be achieved by contributing to the body of research knowledge about classroom design and by actively advocating for change through post-doctoral research and publication.

**Significance of this Study**

The rationale for this study was not unique in that many studies have examined changed classroom models that have been shown to benefit students. Examples of these are found in chapter two. What made this study unusual was its research perspective. Other studies in this area of research have tended to be about successfully changing the teaching space from inflexible to flexible with a pre-test and post-test of students and teachers. They were studies examining transition scenarios in which the outcome of students and teachers provided evidence that best practices in education through changes from inflexible to flexible models have accomplished successful results. However, my qualitative research study examined flexible and inflexible classrooms from a different perspective. It questioned why best practices in current education were not influencing change to the physical teaching space. Further, this study did not question students but questioned administrators responsible for space in college environments where it appeared there was little to no transitional change. Additionally this study looked for factors that prioritized the decisions of administrators who appeared to perpetuate and retain inflexible space.

The rationale for this qualitative study was different from the approach taken by other studies. This study identified college administrators internal and/or external to the subject colleges and it was these administrators who I discovered had exclusivity over the determination of the outcome of space within colleges with the essential control mechanism over the distribution of internal funds (Personal Communication; External Expert concerning internal
governance of colleges, July, 2012). It appeared these administrators shaped the academic as well as the fiscal focus of the institution. These were the important people whose decisions were pivotal to the outcome of classroom space. This study explored what they knew of evidence-based research and design with the aim of discovering factors that became priorities in their decisions-making processes influencing their choice of one type of general-use classroom space over another.

A noteworthy aspect of this study was the people probed for answers and the questions they were asked. There was a cluster of three subject colleges selected for this study. Administrators from within each of the colleges as well as outside administrators influencing them were interviewed and questions asked to determine the degree to which they were aware of evidence-based design which influences internal administrative processes concerning design decisions. Interviewee questions probed the administrators about their understanding of evidence-based design and research. In addition interviewees were asked to respond to questions about their decision-making policies, processes and procedures. Scripted questions were used in interviews. Transcripts explored possible factors that supersede administrative decisions to favour hierarchic classrooms. Administrators were asked, “To what degree do historic factors determine design decisions and in turn create obstacles in the way of change? What cultural factors shape design decisions and create obstacles in the way of change? and, What fiscal factors inform design decisions and create obstacles in the way of change?” This study examined classroom space from a different perspective employing a different rationale. Unlike other research this study questioned interviewees about government policy, processes and college funding influencing decisions that shape physical space within these colleges. The background to this line of questioning was the discovery made early in my research indicating it
was insufficient government funding for institutions that weighed heavily on college administration decisions (Lang, 2005; Wedge & Kearns, 2005). As these researchers explained, there is never enough money to cover all campus needs and consequently fiscal constraint is a common occurrence in colleges. To provide insight into funding, this study included interviews with two senior policy advisors in Government positions.

The purpose of this research was firmly established within its rationale. That is this study was structured to examine why classrooms had not changed to facilitate learner centered teaching methodologies. Its unique perspective examined issues by asking administrators who were responsible for classrooms and its unique characteristic considered why change was not happening. This perspective was important as this study posed questions to those responsible for change and responses were examined from the perspective of administration asked why, in spite of best practice evidence, was change not happening.

**Research Questions**

“What factors become priorities in the decision-making process influencing administrators of campus space to choose one type of general-use classroom over another?”

Positioned at the top of the hierarchy of inquiry, this question framed three research questions.

Research Question #1: What is the importance of general-use classroom space?

This question was based on themes found in literature. Scripted questions were designed to probe for factors influencing priorities that become barriers to change framed by: limited research, silos of expertise, traditional and habitual use of a standard space model, issues surrounding technology, government and college relationships, funding, lack of leadership and the generational biases of interviewees.
Research Question #2: What are the policies, processes and procedures considered by administrators when determining a classroom model?

This question was based on themes found in literature and framed scripted questions concerning operational issues including the structure and governance of colleges. Policies, processes and procedures may differ between business groups but they form an operational structure and are linear in nature. Literature described in Chapter two indicates this structure has had its problems and by probing I was looking for factors influencing decisions.

Research Question #3: What are the other factors influencing administrators when determining the general-classroom space type?

This question asked participant interviewees about their perspectives on other factors influencing them in their decision-making process.

**Theoretical Framework**

I did not find one specific theoretical framework that addressed the impact of environment and space on teaching and learning, or on human behaviour within that context. However, a number of theories suggested the role of environment and space on student learning and provided a broader grounding for this study. Research studies illustrating positive student outcomes provided evidence that has created momentum for educators to learn to use a variety of learner-centered innovative pedagogy methods and models. Improved student satisfaction was and remains an incentive for change to newer ideas about pedagogy (Mandarino & Mattern, 2010). The goal is an overall improvement of a student’s experience leading to a successful institution as a whole. However, there was empirical evidence that reforming pedagogy models was not enough. Some researchers addressed a link between pedagogy, the improvement of space, that space types matter to students in that the characteristics of learning space contribute to the
behaviours of college students (Smart, Feldman, & Corinna, 2006). The studies of Pascarella and Terenzini (2005) commented that learner-centered traditions had guided inquiry toward factors contributing to student success. However, the hierarchic classroom was successful only in terms of the numbers of students it could accommodate and the technology it was able to contain. It failed when assessed from a pedagogical perspective said researchers Britnell, Andriati and Wilson (2012). In agreement, the eLearning article, Apple Classrooms of Tomorrow-Today, Learning in the 21st Century commented, “Time-honoured yet outmoded approaches to education and education reform must be replaced with new and creative ways of thinking about designing learning environments for this generation of students” (Dwyer et.al., 2008, p. 4).

There were researchers who argued that hierarchic classrooms should not be built and they base their evidence on current knowledge focused on, "neuroscience, behaviour and psychology of learning" (Long & Ehrmann, 2005, pp. 42-44). Researchers, Smart, Feldman and Corinna (2006) referenced Holland’s theories of student engagement. They noted it was Holland who surmised it was clear that changing teaching methods alone would not support pedagogy. Holland’s theories denoted an effective change was inclusive of teaching methods as well as the environmental tools that would support pedagogy. Echoing Holland, the researchers said;

We seek in our present efforts to offer a theory-based approach to the study of student success in post-secondary education that devotes equal attention to both the predisposition and behaviours of college students and the campus environments they encounter in their collegiate experience. (2006, p. 5)

Their approach referred to the personal-environment fit theory that they attributed to Holland who made a critical link between student success and their learning experience. The degree of
education success was connected with how comfortable the student felt and their assessment of their fit with the physical environment. The theory was based on an evidence-based connection between the student learning experience and their interactions with their academic environments.

Holland’s theory considered the broad classification of several vocational behaviours namely, realistic, investigative, artistic, social, enterprising and conventional. When combined and satisfied they contributed to the success of all students (Smart et al., 2006). Pascarella and Terenzini, for the most part, thought Holland’s theories less than worthwhile except when understanding students interested in the Arts (2005). The researchers came to an agreement about creative students who they said related to teaching spaces when they were socially and environmentally reflective of their characteristics. The importance was the inclusion of environmental considerations linked to teaching but according to Pascarella and Terenzini (2005) this was applicable only for students that were in artistic studies. Holland’s research considered all programs of study were in some way influenced by an environment that was reflective of their business model (Smart et al., 2006). Pascarella and Terenzini exclude this consideration with other programs and resolved that their research was entirely based on intellectual traditions (2005).

Personal-environmental fit lay within the two studies of education facilities that were pedagogy theories and models, as well as physical theories and models. As a researcher, educator and interior design professional, personal-environmental fit are more than theories discussed in texts and articles. These theories were not separate considerations., but were complexities that designers understand work together to form an interior space responsive to the human condition within an education context (Lawson, 1997).

My point of view was derived from my duality as an educator in a college and interior
designer. I considered that when examining positive influences on student growth and development any point of view that excluded the environment as an influence on students was limited in dimension. I agreed with Holland’s theoretical view that including the influence of education environments completes the picture of student success. Student success was concerned with more than Pascarella and Terenzini’s theories of engagement, which limited their theories to the influence of space for arts students only. Personal environmental fit included the influence of the physical environment in colleges for all students regardless of program and to that end this research study was informed by co-mingling the theories that space matters to its occupants, that they relate to its fit and that there is a connection made between the types of space that matters to students which is important and is significant.

**Conceptual Framework**

The conceptual perspective framing my view for this study came from two sources; one was my training and work experience as an interior designer, the other was my training and work experience as an educator. I noted that best practices described in literature indicated the synchronization of space with learner-centered teaching improved student outcomes and I questioned why change from teacher-centered classroom spaces was not changing to learner-centered flexible spaces. My conceptual framework also included two pivotal points that were: first, that the study of the problem had to be approached from the perspective of the road less traveled (McFall & Beacham, 2006; Grandin & Johnson, 2009), and second, the understanding that the student was the central figure (McFall & Beacham, 2006).

Two diverse researchers whose studies have a great deal in common framed my research approach. The first was that of Temple Grandin (Grandin & Johnson, 2009). The second study was by McFall and Beacham (2006). The studies differ in that Temple Grandin’s’ interest was
the behaviour of cattle while McFall and Beachams’ studied the behaviour of students. Additionally, whom they studied differed. Grandin’s study explored the resolution of issues for ranchers while McFall and Beacham explored the resolution of issues for teachers. However, the perspectives of these two studies converged when considering two points. First, they explored the resolution of issues by linking the physical environment to the appropriate use of the space by their respective users. And second; their studies examined their respondent’s respective problems by taking the road less traveled by examining what was wrong and studied this issue from the perspective of the user and not the overseer/teacher.

I proceeded with my study understanding that the student was surrounded by influences underpinning and ultimately leading to their success, or not. These influences illustrated in Figure 3 wanted to be satisfied as they acted as a structure and in so doing created stability for the student. McFall and Beacham (2006) noted that elements such as intellectual, organizational, social, material, natural and financial wellbeing were all significant to the central student. They explained that conceptually, when these influences were satisfied, success was achievable. Included within the framework was the element of success as related contextually to the student’s environment; physically, intellectually and socially. It was McFall that designed the personal research systems management platform for describing what she thought was quality living and learning for students. The following figure illustrates her graphic view of the contextual influences experienced by students.
Figure 3. The personal resources system management platform


This diagram was designed by B. McFall in 2002 for the study titled Future Promise and published in the Beachan & McFall article (2006) titled Ideal Design Programming with Photo ethnographic Data and Systems Analysis.

The study conducted by McFall and Beacham (2006) linked elements influencing learner-centered education with space and as such it added another voice to the body of knowledge joining the voices of other researchers who believed that student learning occurred when supported by appropriate best educational practices, physical space and tools (Lackney & Jacobs, 2002; Smart, Feldman & Corinna, 2006; Bickford & Wright, 2006). To form a framework for this study I examined current research and synchronized it with the ideal physical learning situation for students. In questioning why classroom spaces were not changing to learner-centered flexible spaces, I considered the problem might be within the structural organization of college administration. Perhaps the student and best practices were left out (Figure 4). The diagram drawn shows students and best practices isolated from each other, without arrows indicating a flow of communication. The gap of white paper between students and best practices graphically identified they resided outside the flow of activities controlled by
administration who governed over the types of tools, the preference for pedagogy type and the synchronization of space.

Figure 4. The problem with the current governance structure

Copyright © 2015 M. Teitelbaum.

I considered that the type of classroom used was in the hands of administration and not students. Students and best practices were removed from governance decisions and to that end I did not seek answers by asking students about spaces that had experienced change but explored the question from a different perspective. Answers were sought from administrators of colleges by asking them why inflexible classrooms continued to be the preferred model remaining unchanged in higher education institutions (HEIs).

The focus of this study followed the example of McFall and Beachom, where the student was the center of importance when forming the ideal educational environment. I linked a framework of influences to questions that asked administrators who worked internally and externally in colleges about policies, procedures and processes influencing pedagogy types. Central to the line of questioning was the understanding of the student who required several
elements to create a holistic picture of satisfaction. Figure 5 is the visualization of what was meant by governance needed for holistic satisfaction of influences.

**Figure 5. The resolution for the governance structure**

My conceptual view was framed by my dual perspective wherein I connected physical space with teaching models and questioned why they were not synchronized.

**Scope and Limitations of the Research**

The scope of this study included a purposive sample of multiple sites with the goal of discovering an array of possibilities about a problem from the perspectives of the participant interviewees (Creswell, 2009). Three colleges were chosen out of the twenty-four Colleges of Applied Arts and Technology (CAAT). Eleven administrators within these three colleges and five consultants were asked to contribute.

The main limitation was that findings cannot be generalized beyond the three colleges that were the focus of this study. However the findings may be of interest to other educational
institutions and not exclusive to the colleges included in this study.

The scope of the problem required a defined focus, which was another limitation. To that end I limited the study in scope to interviewing administrators making decisions about classroom space and opened the study to interviewees contributing inside as well as outside perspectives.

The scope of the study also included a time frame limited by interviewee schedules and the number of interviews that I could see in a single day given each interview was not to exceed one hour. Consequently, the time frame for all interviews was finite and occurred between the months of December 2012 and March 2013.

This study was focused on campus space and specifically with two possible types of general-use classrooms identified as flexible and inflexible. Although limited in scope to these classroom types, the outcome of this study has potentially wider implications for change to other space types.

Although limited in scope to a defined point in time and to specific spaces this study will add to a growing body of literature by including research questioning administrators of space about factors swaying decisions based on their understanding of best practices and users of the space.

**Summary and Outline of the Rest of the Chapters**

This thesis is written in five chapters. Chapter one describes my interest in this study that began when I was placed into physically inflexible classroom spaces purposed for generic teaching. This formed the background of the problem, in that, the spaces did not synchronize with learner-centered teaching and was inclusive of the understanding that inflexible general-use classrooms resisted other teaching uses. The resistance to flexibility formed the basis for the problem situation where I noticed that administrators did not utilize best practice research, and
thus student success was not considered when building teaching environments. The purpose of this research became the search for factors influencing the decisions of administrators of education environments to provide one type of teaching space over another and the advocacy for students who needed learner-centered classrooms to improve their success. The rationale for this study was to build knowledge about the need for the best facilities for our students who did not appear to have a supporting voice. The study was framed by theories connecting student fit with appropriate teaching space that would lead to their success. The approach and perspective of this study was from the road less traveled, as it did not investigate successfully occupied learner-centered space, but sought answers to why space change was not happening.

Chapter two reviews the research of others to include literature inclusive of articles, texts, photos, blogs and personal email. The chapter is broad exploring pedagogy, government and college policies, processes and procedures, neurological research and technology. The purpose of the chapter is not only to demonstrate the literature of others but also to establish a context for this study that is both historic and current.

Chapter three provides a detailed description of the research methodology employed by this study for the purpose of collecting qualitative data. This study employed research design and methodology specific to an exploratory, descriptive case study of three colleges. The contents of this chapter include the questions asked of sixteen interviewees, the site as well as participant selection and document section. Assumptions, concerns and issues are described in this chapter to include philosophical concerns, limitations of methodology and ethical issues.

Chapter four presents the discoveries, which were the findings of this research. Also found in chapter four is the analysis of the discoveries based on scripted research questions and conversations providing the outcome of the interviews. Some of the discoveries from interviews
are not exclusively related to the research questions. It was these findings combined with the scripted discoveries that provided valuable insight into the problems with the development of campus space. Chapter five brings the thesis to a close by discussing the research questions and the implications of the study.

**Terms and Definitions**

The following highlight particular terms of interest in this research, and provides definitions for the purpose of this study:

*Evidence-based design.*

In accordance with researchers Hamilton and Watkins (2009) evidence-based design is the accumulated knowledge associated with the client’s business activity that is critical to their success (p.11). Within the context of this research study, accumulated knowledge refers to literature and case studies found in chapter two. In the context of this research study reference to the *client* are colleges which are crucial to the outcome of the exploration of research study and of case studies located in chapter two.

*Informed design decisions.*

A question belonging to this research study concerns whether interviewees make informed decisions. The definition can be divided into two parts.

*Informed:* “Having or showing knowledge of a subject” (Wehmeier, 2000, p. 667).

*Design:* “A plan or drawing produced to show the look and function or workings of a building” (Wehmeier, 2000, p. 340).

*Traditional teaching.*

This term describes a method of hierarchic pedagogy. Traditional teaching is lecture based, consisting primarily of class discussion and individual study (Michaelsen, Fink, & Knight,
2002).

**Team-based learning.**

This term describes a method of learner-centered pedagogy and includes team based learning. Team-based learning is class group and teamwork. It is problem-based consisting of task driven, active learning methodologies and activities (Michaelsen, Fink, & Knight, 2002).

**Hierarchic general-use classrooms.**

This term represents the physical space configuration to include tools consisting of tables, chairs and electronic devices associated with the support required for traditional teaching pedagogy. This format is rigid and does not easily conform to any other form of teaching pedagogy other than traditional teaching.

**Learner-centered classrooms.**

This term represents the physical space configuration to include tools consisting of writing surfaces, seats and electronic devices associated with the support required for team-based learning pedagogy. This format is flexible and easily conforms to a wide range of teaching pedagogy.

Other names include flexible classrooms, team based classrooms (Taylor, 2009).

**Row-and-column.**

This is a rigid patterning of furniture consisting of chairs and desks found in traditional hierarchical teaching environments. The tools (primarily chairs and tables) are arranged in rows-and-columns within a confined space. Taylor (2009) refers this to a factory or assembly line model and defines the classroom setting as, "The out-dated design for schools requiring identical classroom boxes lining corridors with student’s desks arranged in rows all facing a teacher” (p.417).
**General-use classrooms.**

General-use classrooms are best defined by their need to remain physically generic because they service the general population of the institution. Scheduling and timetabling these classrooms concerns their generic purpose and that in turn determines their physical shape. Colleges divide classroom space into two categories defined by their purpose. These are classrooms and laboratories (E.C.S., 2012, pp. C-1). General-use classroom consist of the hierarchic placement of desks and chairs into row-and-column configuration.

**Purpose-built classrooms.**

Purpose-build classrooms are teaching spaces. Their function as a classroom is defined and then designed for their use by a specialized group of students and educators. An example of a purpose-built space is a pilot simulation teaching classroom. General-use classrooms are not defined and then designed in this way and can be used by any students and educators. These two classroom spaces are physically categorized by the institutions differently thus scheduling of the spaces is treated differently (E.C. S., 2012). Scheduling other teaching activities in purpose-built classrooms is hard to do because of the configuration of the equipment in the space. For example, it is difficult and unlikely that a robotics laboratory (A2 classification) filled with technical equipment can accommodate a Liberal Arts or Science class. Further, the purpose and the design of the A2 space is to teach specialty subjects and that is why these spaces are specifically appointed with equipment designed for the use of one school or department. My email communication on March 21, 2012 with a scheduling coordinator confirmed that scheduling of laboratory spaces “belong specifically to the school, i.e…..studio, computer, robotics, etc.”
Scheduling timetables for students.

Scheduling is the process of finding space for students and forming their timetables. It is reliant upon the categories of space available within the institution. Categories are purpose-built classrooms and general-use classrooms. Departments or programs within colleges might have specialty A2 classified purpose-built classrooms that other departments are not allowed to use. However, all programs have access to the A1 category of general-use classroom space. The A1 generally purposed classroom space or general-use classroom is a dual purpose teaching environment that is scheduled for a school or department and if needed is scheduled for other departments within the college as well (E.C.S., 2012). That is, a school or department has the opportunity to schedule their classes in general-use classrooms that are usually in close proximity to their laboratories. A school may leave gaps of schedule time open in general-use classrooms that are in close proximity to their school. If a general-use classroom cannot be completely booked by a school then to ensure efficiency of space utilization the space is pooled which allows the Registration department to open up the classroom to all schools for their use.

It is because general-use classrooms within colleges might be used by all schools or departments that classification A1 is considered general teaching spaces. General-use classrooms are designated to accommodate any program and are generic in design so they may be scheduled by the general population within the college campus.

Gaming.

Gaming as a method of community participation in design used to reach consensus. (Taylor, 2009).

The human condition.

The study of the human condition began as research conducted by anthropomorphic
engineers whose expertise sought to incorporate human dimensions with design processes. The human condition that emerged was incorporated into the text titled Human Dimension and Interior Space (Panero & Zelnik, 1979). Concern about accommodating humans within defined space has been the study of many including Leonardo da Vinci and Le Corbusier who sought in their own ways to find perfect support for people in relation to the built environment.
Chapter 2: Literature Review

This literature review explored, assessed and evaluated the findings of researchers and scholars who examined the historic use of row-and-column and new learning spaces within the context of best practices. It examined the effect of generational differences, pedagogy in transition, burgeoning technologies, new understanding of neuroscience, administrative policies, processes and procedures impacting the classrooms within college campuses.

The chapter concludes with a review of the limitations of literature. It was discovered that scholarly research about inflexible and flexible classrooms was narrow in scope. Often fragments of information were published in articles mainly concerned with topics embedded within silos of expertise or buried in obscurity. The scarcity of research material could be looked upon as a barrier to discovery of supportive research about classrooms. The difficulty in finding information revealed gaps of understanding concerning the classrooms and without adequate scholarly research supporting change there was habitual reliance on traditional teaching space.

The Classroom

Themes discovered in literature identified that the inflexible general-use classroom was an ancient space model. Documents and photos indicated the continuance of the row-and-column classroom and demonstrated that in spite of opportunities the classroom did not change.

The classroom documented in photos.

The traditional classroom has deep roots in history. The inflexible row-and-column configuration seen today is very similar to the Sumerian model that dated to approximately 2,000BC. The Sumerian classroom, depicted in Figure 6, consisted of rows of stone seats. Students sat in rows facing forward toward a single location where a teacher stood facing the students. The purpose of this configuration was to support the rote or teacher-centered model of
education. It was very similar to the current classroom shape.

The following photos show the historic use of row-and-column teaching space. The zone in the front of the space is allocated for the teacher while the remaining space is zoned for students. Photos of inflexible classroom span from 2,000BC to 2014AD. Perhaps there were many opportunities to change but recent documentation indicates the row-and-column classroom model is actively used in colleges today.

Figure 6. The Sumerian classroom

Note: The ancient classroom, Euphrates Valley, 2,000 BC.

Given this classroom type is 4,000 years old one must ask whether there have been opportunities to change. According to Cole there were opportunities but none with momentum
enough to take hold. Michael Cole points out, in spite of opportunities to change, the hierarchic classroom remains the default physical environment deployed on college campuses today (Cole, 2008).

The following (Figure 7) depicts a learning setting from the 14th century. The fresco depicts students learning in a church. Noted are similarities between the classroom of Sumeria and this medieval space, as all students are seated in rows facing the teacher, a pattern that continued when the University constructed permanent space in the middle of the 16th century. Eager students occupy the front rows while others talk and snooze in the back rows (Diener, 2009; Bologna, 2015).

Figure 7. The medieval learning setting

Note; This image is showing Henry of Germany delivering a lecture to University students in Bologna Italy. Source; Diener, (2009). Artist, Laurentius de Votolina c. 1350
**Opportunities to change.**

The following is a photographically documented trail demonstrating the continued use of hierarchic, classic, inflexible general-use classroom models in one of Ontario’s colleges. This chronology confirms, in spite of opportunities to change the row-and-column inflexible classroom continues to be the default method of providing general-use classrooms.

A series of photos document classrooms from the early 70’s through to 2012 and illustrate both new and renovated learning environments. The photos come from two sources. One source was gathered from library archives (Figures 8 and 9. A. Unknown, 1970 approximate date; B. Unknown, 1970 approximate date).

Figure 8. A general-use classroom from the early 1970's

Source: Photo provided by Library Services at Humber College. The photographer is unknown. Note: This teaching environment utilizes the hierarchic, classic inflexible row-and-column model of configuration. The teaching zone is in the front of the classroom and the students face forward in row-and-column configuration.
Figure 9. A general-use classroom from the early 1970's

Source: Photo provided by Library Services at Humber College. The photographer is unknown. Note: this teaching environment utilizes the hierarchic, classic inflexible row-and-column model of configuration. The teaching zone is in the front of the classroom and the students face forward in row-and-column configuration.

The second source was a series of photos that were taken by this researcher over a series of years. All photos come from the same Ontario College (Figures 10 through 14).

Figures, ten and eleven, were taken in 2012 by this researcher. They depict two classrooms in different areas of the original campus buildings built around 1970 to 1980 on this college campus site (Karpita & Burt, 2007). The photos capture environments newly renovated post 2005. The photos show newer furniture, new technology but the room configuration continues to utilize the same inflexible general-use classroom model of as seen in figures eight and nine.
Figure 10. A newly renovated general-use classroom within an old campus building

Source: M. Teitelbaum May 15, 2012
Note: This is the photo of a general-use classroom that was recently renovated. The location of this classroom is in a building dating between 1970 and 1980.

Figure 11. A newly renovated general-use classroom within an old campus building

Source: M. Teitelbaum May 15, 2012
Note: This is the photo of a general-use classroom that was recently renovated. The location of this classroom is in a building dating between 1970 and 1980.

Figures, twelve, thirteen and fourteen are photos taken in 2012 depicting three classrooms within different areas of newly built campus buildings constructed in 2004 and 2006. The photos captured environments that continued to utilize the same inflexible general-use classroom model of row-and-column configuration as seen in the historic photos (Figure 8 and Figure 9) and the more recently renovated general-use classrooms (Figures 10 through 14).

Figure 12. A general-use classroom in a new college building

Source: M. Teitelbaum, May 15, 2012
Note: This is a photo of a new general-use classroom in a building constructed in 2004. The desks and tables are in row-and-column formation facing the teaching zone that is located at the front of the space.
Figure 13. A general-use classroom in a new college building

Source: M. Teitelbaum, May 15, 2012
Note: This is a photo of a new general-use classroom in a building constructed in 2004. The desks and tables are in row–and-column formation facing the teaching zone that is located at the front of the space.

Figure 14. A general-use classroom in a new college building

Source: M. Teitelbaum, May 15, 2012
Note: This is a photo of a new general-use classroom in a building constructed in 2006. The desks and tables are in row–and-column formation facing the teaching zone that is located at the front of the space.
Figures fifteen, sixteen and seventeen describe a sequence of events that occurred from 2007 to 2012 and address the question; if given the opportunity will classrooms change? At the college where these photos were taken the answer is demonstrated in the sequence of events captured. The classrooms seen in the photos were in the same area of an existing building and used by the interior design department as general-use classrooms until 2012 when the department was moved to another campus building. The photos captured the conversion of teaching spaces that were inflexible (Figure 15), converted to flexible in 2007 (Figure 16) and used successfully (Teitelbaum, 2011). These were renovated by the Facilities Planning department who returned the classrooms back to their inflexible general-use standard in 2012 (Figure 17).

Figure 15. Classroom time sequence 2007 pre-change

Source; M. Teitelbaum, March 22, 2007
Note: This photo is one of a time sequence (Figures 16 and 17) where the space was changed from inflexible to flexible and then returned to inflexible. This photo shows drafting tables in row-and-column configuration. The orientation of the room is students face the teacher who occupies the front of the classroom. Instructional white boards, the green board and the technology podium are all in the teaching zone.
Figure 16. Classroom time sequence 2007 post change

Source: M. Teitelbaum, February 10, 2008
Note: This photo is part of a time sequence where the general–use classroom was reconfigured (Figures 15 and 17. The photo shows the rows of drafting tables were removed and replaced with flexible furniture. Students worked in teams and clusters. The space orientation was altered as much as possible without a specific teaching zone.

Figure 17. General-use classroom time sequence 2012 – reversal

Note: In 2012 the department was moved to another building and the space was returned to an inflexible general use format. The desks and chairs were returned to the row-and-column configuration with the teacher position at the front of the classroom (Figures 15 and 16).

In spite of best practices these classrooms were changed from the flexible classrooms to the inflexible general-use classrooms. The transformation from successful flexible classroom back to inflexible classroom underscores why I asked the central question of this research study. Why does the inflexible general-use classroom continue to dominate in spite of best practice research and design evidence that demonstrated that flexible teaching supports students?

Early investigation questioned whether change from hierarchic inflexible to the learner-centered flexible teaching model might not have been possible due to two factors; the lack of funding, and the lack of opportunity to make changes. However, the photos indicate throughout the years from 1970 to 2012 both funding and opportunity were available as change to upgrade the internal tools and technology did happen. The photos also indicate regardless of the passage of time, opportunity and funding, the classroom configuration preference remained the inflexible model. The photos also demonstrate, although there were opportunities for change to other teaching models, it was the hierarchic, classic model that was and remains the default environment. Research examines possible reasons for the retention of the hierarchic inflexible general-use classroom. One possible reason found is that this classroom design has become a habit and thus a default go-to setting for administrators (Jukes & McCain, 2007).

**Operational view of the classroom.**

The hierarchic inflexible and rigid classroom is configured with four walls and a means of entrance and egress. The floor is flat, not usually elevated, and never tiered; a tiered or theatre-type environment is considered a lecture hall and not a classroom in the context of this research. The volume of space suits a small group occupancy which can vary anywhere from twenty to sixty students with one teacher. This is consistent with the E.C.S. COFSI Report (2012).
The space has an orientation, that is, the teacher is always in the front. The front takes up approximately one quarter of the available space. Students occupy the remaining three quarters of the environment (Taylor, 2009)

Three of the four walls of the space may or may not be adorned with educational objects and tools. However, the front vertical wall has a means of conveying information to the students who view what the teacher has written for all to see.

Tools within the space are:

- A means of seating for each of the occupants
- A horizontal surface for each of the occupants so that they can read and write
- Display opportunities usually fixed to the walls for use of the teacher
- A podium for exclusive use of the teacher.

All students usually sit on individual chairs, with writing surfaces (desks) facing the teacher, who occupies the front of the space. All teachers face the students. Teachers have the option of sitting or standing to face the students.

**The advent and meaning of “schooling”**.

A talk given by Cole as part of a lecture series gives an account of the advent of schooling (Cole, 2005). Serpell (2005) also comments on Cole’s findings. Cole developed a following of like-minded researchers who emailed each other in December 2008. The following includes researchers Kellogg and Smagorinsky (2008).

There are two types of school. Cole (2005) and Serpell (2005) define them as centralized standardisation where learners are separated or ‘schooled’ versus de-centralized or ‘unschooled’ where students remain embedded within their family groups. The classroom is the result of formalized schooling that is a cultural institution dependent upon support sufficient enough to
allow a segment of society to be removed from the drudgery of daily life in order to learn. Cole defines education as a process of nourishing or rearing a child or a young person and it involves the act of pruning and shaping children’s minds (2005). Teaching children cultural values are the responsibility of societies that concentrate education efforts on the current generation and expect future generations to follow. Kellogg and Smagorinsky comment schools are very old reflections of their societies and education institutions are themselves a part of developed society, where minds in classrooms and schools develop from the outside inwards (Cole, 2008).

From the point of view of curriculum and pedagogy there might be some uncertainty about how education should be approached. Nonetheless the physical environment remains solidly entrenched in a rigid row-and-column model (Cole, 2005). Cole, Smagorinsky and Kellogg (2008) agree the oldest physical evidence of a classroom is reflected in the photo image from Sumeria (Cole, 2005).

The email between researchers Kellogg, Cole and Smagorinsky (2008) is a discussion about a 4,000 year old education space that is the same classroom model used today. Smagorinsky comments that based on this photo the “traditions of schooling run very deep” and “while desks are no longer made of stone and rarely are bolted to the floor anymore, they [students] still tend to sit in the same formation as they did 4,000 years ago.” Ironically he recently gave a talk in a classroom in which the desks were all aligned and “the seats were indeed bolted to the floor.” Cole comments that, “It is important to note that ideology of schooling/virtue/intelligence/class that went with the first school are ALSO still with us today.” The photo of a 4,000 year old Sumerian learning environment denotes the importance of this historic space. However, the researchers agree that the model of space fostering teacher centered education is out-dated and in need of revision.
**Etymology of the compound word “classroom.”**

Etymology according to the Oxford Dictionary volumes 3 and 14 ("The Oxford English Dictionary," 1989); the derivation of the word *class* is to divide or distribute into classes or to classify. John Arbuthnot (1705); “I consider that by the classing and methodizing, I might instruct the reader”. The derivation of the word *space* is a dimensional extension to the word *classroom*.

Classroom is a compound word. **Class** is a noun that derived from the French word *classe* and from the Latin word *classis* or “class, division, army, fleet.” As a verb the word class meant to divide into classes. The school and university derivation of the word springs from other words that are *course* and *lecture*. The word *class* was also used in the 1650’s to describe scholars who had attained a certain level of education.

The noun room is old English for space and pronounced *rum*. The original word was a nautical term recorded in the early 14th century. Later in the mid-15th century it meant chambers (Harper, 2012).

**Classroom as a model.**

The description of the classroom model referred to in this study is known in literature by other names. Adjectives used to describe the classroom type referred to in this study are hierarchical, classical, inflexible and formal, because this classroom type was designed to support a specific pedagogical model. Hierarchical, describes a position of the participants within the structure of the space in which the teacher dominates the student population. Inflexible refers to a classroom in which the tools used within the confines of the space are fixed in place, thus facilitating a singular type of pedagogy dominated by the educator, while the student population is positioned to be passive. The model is also known as the classical model because of its place
in history. Archaeological evidence places the row-and-column classroom as far back as the Euphrates valley 2,000 BCE (Figure 6).

The method of teaching in this space is also known as formal, rigid and learning by memorization as opposed to informal, in that there is a formality and a regimented process to the positioning of the occupants, and inflexible, because the format of the physical environment never changes (Cole, 2005).

The classical configuration of the classroom continued into the twenty-first century. Historically, the basic shape of the space was either rectangular or square (Figures 8 and 9). There was and continues to be a designated area for the teacher at the front of the classroom. Also found at the front of the classroom is a writing surface for use by the teacher. Newer hierarchical classrooms include a podium with controls for various types of technology intended for the exclusive use of the teacher. All students sit in individual seats, facing the teacher, with personal horizontal desk units in front of each of them. The desks and seats follow a regimented row-and-column configuration (Lackney, 1999). The desks as pieces of furniture are heavy and are too cumbersome to move, making flexibility difficult. In most classrooms, the furniture is tightly packed into the room. Flexibility is limited, as the ability of a teacher and class to reconfigure this furniture, and then return it to its original state within the time constraints of a teaching module, is next to impossible (Teitelbaum, 2008).

The location of the teacher in the front of the classroom is a fundamental method of operation within this type of classic classroom space. This space was and remains to this day hierarchical and is intended to ensure the teacher dominates the students. This historic view of the classic classroom supported curriculum objectives;
Traditionally, [this type of] classroom arrangement is dichotomized according to territorial (space organized by individual desk ownership) or functional (space organized by a specific activity) considerations. Educators have often assumed that row-and-column seating arrangements in classroom settings are the most common form of didactic teaching. (Lackney & Jacobs, 2002)

Echoing Lackney and Jacobs view, Diana Oblinger notes, “Historically, learning spaces were designed around teaching by maximizing the number of students in a room. The presumption was good teaching results in learning - a presumption that focuses on the instructor” (2006, p. 14.13).

The typical classroom is the same configuration of a place of learning at Merton College Oxford founded in 1264. According to researchers Hashimshony and Haina (2006), the learning space at Merton was a quadrangle shape which resembled a monastery cloister. The resemblance to a cloister was designed to ensure maximum student obedience and protection from the outside world. It allowed easy surveillance over students by faculty and optimal utilization of small numbers of students. The closed configuration reflected the severe character, the strict discipline and the rigor of daily routine of the college (Hashimshony & Haina, 2006).

The hierarchic classic configuration of the classic row-and-column teaching space has not changed over the years. It remains stuck in time holding tightly onto the configuration of bygone days and the space remains inflexible. Taylor refers to the design as, “a box car approach,” useful when there was a standardized, hierarchical and rigid pedagogy and when educators were teacher-centered and required a tight enclosure for student containment (2009, p. 6). Ankerson and Pable concur but go further by saying the classic classroom design was an assembly line
business model of delivering facilities (2008). It is time to move from this inflexible hierarchical design format to one that can reflect the needs of its users.

**Ontario Classrooms**

College campus classroom environments in Ontario between the 1960’s, when colleges in Ontario were constructed, to the present utilize the same formulaic design program. The historic pattern, the classic general-use classroom is continually rolled out on campus as if it were new, fresh, up-to-date and relevant to today's education experience.

**The origin of the classrooms on Ontario’s campuses.**

To meet the anticipated population growth of the Baby Boom generation, governments and teachers began to think seriously about post-secondary education. New colleges were established under a 1965 Act of Legislation (Clark et al., 2009). Very rapidly, community colleges began to build campuses, and these buildings remain in use. In a recent article in College Administrator Magazine, Swan (2010) interviewed Facilities Managers who were part of the construction frenzy of the 1960s to illuminate pivotal issues concerning the construction of college campuses in Ontario. First and foremost, the buildings had to be cost-effective, and shortcuts were taken to meet defined and limited budgets. College campus buildings went up in record time. The buildings had to be constructed so quickly that essential details concerning how colleges operate were not considered. An example is the classroom that was designed exactly as that in high school. In addition, there appeared to be no assessment of how these buildings in the context of higher education were going to function for the users of the space. The buildings were simply seen as generic teaching shelters. There was no real analysis concerning pedagogy, the assumption being that these new teaching environments would operate similarly to high schools (Planners, 1969). Historic photos reveal that general-use classrooms were basic and definitely
hierarchic in configuration (Figures 8 and 9). Gordon Mickovski from Seneca College, a Facilities Manager at the time of early college construction, commented that at the time he thought one of the buildings on campus looked familiar – then he discovered that the college building was a duplication of his high school (Swan, 2010). The outcome of this building frenzy and the consequent compromises made during the construction boom of the 1960s and 1970s resulted in a legacy of campus buildings that were built for a time when flexibility and change were unforeseen. Pedagogic theories and mainstream technological devices of that time were not what they are today and as a result, the current classrooms within the college campuses of Ontario do not support the newer demands of this generation of students with respect to either pedagogy or technology.

**The attitude of generations.**

Generational differences help explain why Ontario campus classrooms reflect a specific pattern of design. Looking through the lens of the generation in charge decades ago, one can understand the rigidity and inflexibility that has become the legacy of hierarchical design that remains today. Those in charge at the time established a framework of design reflecting straightforward, one dimensional, rigid thinking. They belonged to the generation commonly known as Traditionalists who experienced life in a linear way. It was their outlook that shaped the space occupied today. However, the generation that followed, the Baby Boomers carried the tradition forward and perpetuated the strict design pattern (Jukes & McCain, 2003, 2007; Jukes, McCain, & Crocket, 2010; Scott-Webber, 2012a, 2012b).

A brief exploration of generational differences between the pre-war traditionalist and boomers helps to shed light on the attitude toward design and education that currently prevails. A generation is defined as a group that shares both the same birth years and significant life events.
They “share a similar world view grounded in driving social or historical events that have occurred during that generation’s development years” (Shaw & Fairhurst, 2008, p. 366).

**Traditionalists, the decision-makers of the 1960s.**

The decision-makers at the time of the college boom of the 1960s were Traditionalists who were born between 1922 to 1945 (Sullivan, Forret, Carraher, & Mainiero, 2009). A prevailing characteristic of this generation is they were linear thinkers who were steeped in the English system model of higher education: “During the mid-20th century, as classrooms became larger the level of social interaction diminished within the ‘one size fits all’ classroom and the student role increasingly became one of ‘a scribe’ (Bickford & Wright, 2006, p. 4.4). Thus, classrooms were static spaces. They had a one-directional view. Traditionalist thinkers at that time presumed learning only took place within the classroom and the teacher was the primary educator. This attitude toward teaching and learning was apparent within the college environment. The traditional view of classroom spaces was one-size-fits-all and social engagement among students was never considered essential for learning. Classroom floor plans looked essentially the same, and they were constructed so they were not conducive to discussions among learners. Social interaction was kept out of the classroom. The static hierarchical design of the classroom optimised a one-way transmission of information (Brown & Long, 2006). The students who occupied these classrooms decades ago belonged to the Baby Boomer generation whose attitude fundamentally was very different from their forbearer generation, the Traditionalists. As the Traditionalist generation retired, Baby Boomers transitioned from students to those of influence within the college system. Remarkably, the Baby Boomer generation ignored radical changes that occurred throughout decades, and it was this generation that continued to perpetuate the classic classroom design pattern. Thus the physicality of the classroom has remained unchanged
and stagnant.

**Baby Boomers, the decision-makers of today.**

The issue that is difficult to explain is why the classic physical setting of college classrooms has not changed in decades. The question remains, exactly why have Baby Boomers chosen not to make changes to the design of the general-use classroom? There appears to be very little focused research into this question. Researchers have not asked the direct question to the providers of college campus spaces. However, research into generational attitudes of those that currently maintain these spaces can provide some insight. Understanding the generational attitudes of those managing college premises today can give insight into the reasoning behind their steadfast loyalty to the configuration of the classic general-use classroom space. Incredibly, with so much advancement and change in every professional field, it is amazing to walk into these campus spaces and experience a type of time warp. In order to explain this phenomenon, generational preferences and attitudes provide insight.

According to Oblinger, “Learning spaces often reflect the people and learning approach of the times” (2006, p. 1.2). Although Baby Boomers are considered a different generation they appear to covet a similar work place dynamic as their Traditionalist predecessors. Like Traditionalists, Baby Boomers want to maintain both control over their environment and reflect a personalized space that signals prestige (Sullivan et al., 2009.). They are interested in intrinsic rewards such as the prestige attached to walled offices as opposed to shared open workspace environments. The preference to hierarchic compartmentalization is reflected throughout college campus design. An example of hierarchical patterning is the continuation of enclosed and walled offices for college administrators. These offices reflect a singular use for the control of the occupant as well as prestige; space equals status. Regardless of the trend in the corporate world
toward egalitarian cubicles, the trend toward offices for administrators in the upper echelon of the college system remains their design preference. Likewise, the Baby Boomer generation view classrooms as compartments for one singular purpose, and these spaces also continue the design pattern of compartmentalization. In addition to being hierarchical supporters of college space, Boomers have a “live to work” attitude (Sullivan et al., 2009, p. 285). They tend to be workaholics. They tend to work in silos and rarely collaborate with colleagues in other disciplines. They tend to perpetuate the need to build and renovate college spaces quickly and cheaply in order to provide space without input from other teams to assess how the space will be used (Swan, 2010). Swan admits that while the Facilities Management workforce appears to want a changed master plan, they have not gotten to it in decades (2010). Instead, they tend to react quickly as soon as funding is released, fearing that they will lose it unless it is spent immediately. Funding for renovation of new buildings comes suddenly and facilities management departments spring into action, making quick decisions in order to get the job done. They spend available funds and create space for students within an incredibly short period of time. Their tendency is not to make the time to revise standards, thus, they perpetuate old design concepts. However, reactive thinking without consideration to revised pedagogy and new student attitudes is not working for the users of these spaces. What leaders of campus management do not realize is that pedagogy has changed but the standards that strangle this essential educational tool have not. Oblinger comments, “Today’s student – whether 18, 22 or 55 – have attitudes, expectations, and constraints that differ from those of students even 10 years ago. Learning spaces often reflect the people and learning approaches of the times so spaces designed in 1956 are not likely to fit perfectly with students in 2006” (2006, p. 1.1).
**Generation Xers, the decision-makers of the future.**

It is apparent that the generational attitude toward maintaining hierarchy-focused design will change with the retirement of the Baby Boomer generation. Within a short period of time, the Baby Boomer generation will retire and leave the workforce. The work attitude of Generation Xers, (born between 1965 and 1983), the generation coming up behind to replace the Baby Boomers, is that of a “work to live” generation. According to Sullivan, “Xers are seen as placing a higher value on balance to the point of being perceived as slackers. Xers are perceived to be more interested in doing work that expresses their personal value” (2009, p. 285). In addition to a difference in work attitude, Xers have a greater comfort with technology than the Boomer generation. As well as being far more tech-savvy, the Xer generation are fully on board with the discovery of new pedagogical practices as well as new processes of educating and enhancing meaningful learning. They understand that learning happens when participants interact and take on multiple roles, such as listener, critic, mentor and presenter. They discovered that social group work enhances engagement and creates deeper learning that is far more meaningful than the method of memorization frequently utilized by the previous generation (Sullivan et al., 2009). As well, this generation has realized effective work is connected to supportive space. Brown and Long comment that there appears to be a renewed interest demonstrated by the Xer generation in connecting space as a tool to support learning. They comment that “it is not a surprise that learning spaces – classrooms as well as informal spaces – have an increasingly important role in catalyzing this type of learning” (2006, p. 9.2). Although the Baby Boomer generation appears to have coveted their hierarchical spaces and retained the look of the campus institution as an austere and cloistered mix of uninteresting spaces, it is anticipated that, when given the opportunity, the next generation of users will make significant changes. Yes, colleges can wait
for another generation, but should students wait to receive classrooms that are learner centered?

The Traditionalist and Baby Boomer attitude toward the classroom was one of rigidity and uniformity. Classrooms were considered places to work. However, the Generation Xer sees this space as an opportunity for learning, which can happen everywhere. Although this study remains focused on what happens within the four walls of the general-use classroom, the next generation, armed with tools that take learning anywhere, tend to spill over the boundaries. According to the Xer view, learning does not exclusively happen within the classroom. It is possible learning can happen in the corridor as well as the classroom. Thus Xers are urging designers to transform these spaces to reflect a duality of purpose combining two dynamic learning experiences. The duality is first, the blending of teaching/learning space within classroom as well as circulation space and second, the adding of more social convening opportunities for both classroom and corridors (Bickford & Wright, 2006). There is a new need to explore the expansion of the classroom space to incorporate the corridor areas as this coexistence of spaces will improve student engagement and will foster a sense of community among students. Included is the increasingly important technology component. It is a requirement that enables the occupants to communicate and collaborate. The sense of college community is improved by “using the combination of pedagogy, curricular and co-curricular environments” (Bickford & Wright, 2006, p. 4.2). Going forward the design of learning environments should include classrooms and corridors that are large enough to accommodate enclaves for the continuance of the learning experience. These are spaces where students can gather in teams, reflect and collaborate. The duality of space breaks down the rigid pattern of compartmentalized classroom and corridor, and it creates a communal environment designed for learning. As Oblinger comments;

As we have come to understand more about learners, how people learn and
technology, our notions of effective learning spaces have changed. Increasingly those spaces are flexible and networked bringing together formal and informal activities in a seamless environment that acknowledges that learning can occur anyplace at any time in either physical or virtual spaces. (2006, p. 1.3)

However tempting it is to explore additional environments such as corridors, this research will retain focused on one space and will stay inside the general-use classroom. Changing additional spaces is a topic for future research.

**Standardizing classrooms.**

A review of literature revealed that the standardization of the inflexible general-use classroom was influenced by Facilities Planning departments, Government, governance and funding mechanisms.

**Facilities Planning departments.**

One would think that as colleges in Ontario have grown there would have been many opportunities to make changes to the classic design of the general-use college classroom. After all, general-use classrooms are in constant use and space within colleges is, for the most part, at a premium on campuses. Additionally, over decades of continuous wear and tear these spaces have frequently required renovation (Swan, 2010). However, in spite of constant renovations affording many opportunities for change to these spaces, the physical hierarchical pattern of the general-use classrooms remains the default layout (Figures 8 through 17). In the decades between college development and now, many of Ontario’s general-use classrooms have undergone cosmetic adjustments, but changes to the configuration of this environment have not happened. Three reasons appear to account for the continuance of the hierarchical classroom:

1. Changing this space is not a priority
2. Funding of any kind earmarked for research to explore alternatives is not prioritized

3. Without funding and the incentive to change, the default is the hierarchic inflexible general-use classroom configuration.

Facilities Planning departments, the caretakers of these spaces, prioritize the maintenance of campus buildings. Swan gives an overview of the attitude toward the management of building operations within southern Ontario colleges: they concentrate on fixing diesel generators, leaky windows and broken plaster, which is their first priority (2010). Secondly, facilities require funding, “Ask facilities managers about their challenges and they’ll all come up with the same three: money, money and funding not necessarily in that order” (2010, p. 7). The third reason for neglecting change concerns a reactive response to design issues rather than methodical planning and thinking through issues that would foster change. Whatever has to be done within the college, be it patch and repair of the existing facility, or the creation of entirely new facilities, is done quickly, without much time to rethink old ideas concerning out-dated classroom standards (2010). The speed of construction frequently limits time to rethink and make changes to existing building standards. All too often a default configuration is recaptured and re-deployed for newly built teaching environments.

**Government influences on classrooms.**

This thesis explores the role of leadership in higher education institutions including the influence that funding has on the governance structure of colleges and on the configuration of campus space. Influences are examined by evaluating events of the past illuminating the long-term and often-problematic complexities associated with leadership and governance affecting post-secondary educational institutions today. Also examined is how events have influenced the configuration of the general-use classroom.
Government and funding institutions.

The connection with funding, government and leadership and their influence on campus space has at times been difficult to explore, as research into the current state of the physical campus environment is not a topic robustly investigated. There are relatively few texts and articles written on the subject as articles are not solely concerned with issues concerning colleges in Ontario. There has been much more attention paid to the campus as an educational-teaching environment and much less attention given to the physical (bricks and mortar) contribution of campuses as a supportive educational environment. While this researcher is interested in the funding of campuses, it appears most other researchers are not but there are a few key researchers who examine factors that become priorities in the decision-making process that in turn influence the decisions of administrators of campus space to choose one type of general-use classroom over another type of design. The narrow focus of this thesis is college campuses in Ontario. Broadly, research studies and articles are inclusive of a wide variety of articles and texts about Colleges and Universities in both Canada and the USA. Nonetheless, there are enough similarities between American and Canadian publicly funded colleges to draw parallels explaining how postsecondary educators and policy makers influence the configuration of campus teaching and learning spaces.

Government policies, processes and procedures framing fiscal issues weigh heavily on the administrators of campus space. However, understanding the big picture is necessary before isolating factors influencing administrative decisions. To realize the impact requires knowledge of the interaction between government and colleges concerning funding as well as an understanding of how historic events, leadership and the relationship between government and colleges continue to influence the physical nature of our campuses.
Funding public institutions pre-1900.

Canadian education institutions were first established in Quebec and they date back to 1608 (Lang, 2008). Publicly-financed institutions began in Ontario in 1827 with the establishment of the University of Toronto (Clark et al., 2009). In addition to early public institutions, there were Canadian colleges founded by private benefactors. These institutions were incorporated separately from government-run institutions and were considered private corporate entities (Lang, 2008). Small sectarian colleges began in 1867 and these were at first publicly funded, though separate interest groups, including religious institutions, also supported them. However, in the early days of Canada’s development, the mass education of all citizens was not a real consideration. It was not until the end of the Second World War that the connection between higher education institutions and the education of the masses for the public good was made. Colleges as we know them today were the result of this public push to ensure all citizens had access to higher education. Initially they were called community or junior colleges and they were non-degree granting institutions. The government funded these institutions. Since the founding of Canada in 1867, public government funding in Canada has historically come from both federal as well as provincial pockets, but the responsibility for the distribution of funds has belonged to the provinces, which ensured this policy, first legislatively and then constitutionally (Lang, 2008).

Funding public institutions post 1900.

Prior to the mid-1900s, funding was not tied to the quality of student education. Although the government provided over 90% of the funding that reached colleges and universities, higher education institutions (HEI) did not concern themselves with campus environmental concerns, class sizes, or average amounts of physical space per student, and the quality of physical space
was not important (Clark et al., 2009). However, in the years following the 1950s, funding issues became tied to the quality of student education. Two issues caused the change in policy: first, massive population growth, commonly known as the baby boom, and, second, the understanding that society was responsible for educating its future citizens, which would benefit the public good (Lang, 2008). These issues were true throughout Canada, but was especially true in the Greater Toronto Area which experienced rapid population growth after World War II (Clark et al., 2009). Governments realized that growth, especially in the Greater Toronto Area, required funding for education expansion, stretching education infrastructure dollars as well as tuition dollars. The per-student cost of instruction outstripped the governments’ and students’ ability to pay for education (Clark et al., 2009). Furthermore, this increased demand for higher education spaces spiked an interest in the public understanding that institutions and governments were accountable for preparing students for the future. The outcome was the provision of more funds, which heightened the need for accountability. Past disinterest in higher education institutions disappeared, and for higher education this meant that academic quality and fiscal accountability were under the microscope (Clark et al., 2009). In turn, these services required new and costly administrative services.

Accountability in public institutions.

The tying of funding to the quality of education was generally absent until the mid-1990s. Until then, government policy demonstrated relative indifference in comparison to the interest shown today (Clark et al., 2009). Government paid little interest to the internal functioning of public higher education institutions. Pre-1990 governments provided funds to HEIs without much interest in how they were spent. Funds were given to institutions and the institutions had autonomy over them. The policy of HEIs autonomy over funds remains today, however, today’s
governments demand accountability (Hook, 2002). With few exceptions, governments also left decisions regarding the education of students up to the institutions until policies changed in the 1990s with new government emphasis on accountability. Today’s HEIs have freedom over decisions regarding internal spending and internal educational policies and procedures, but they are highly scrutinized and controlled by the government, who constantly monitor, measure and demand output results (Hook, 2002). From the point of view of the educational institutions, they are highly regulated but at the same time they are free agents. From the government perspective, they are free agents requiring constant regulation to keep them in line. Funding is the essential means the government uses to control HEIs, either by withholding or granting funds.

*The monopsony structure.*

Government control of higher education institutions is achieved through policies and procedures that demand accountability from colleges that receive public funds. According to Cooke, the monopsony structure is the organizational relationship that makes this possible. A monopsony is “a state in which demand comes from one source” and there is “one buyer facing many sellers creating an instance of imperfect competition” (2007, p. 241). To clarify, a monopsony is the working relationship established between many sellers (the educational institutions) and a single buyer (the government). The government has the money, and with it comes the power to distribute funds to the educational institutions as it sees fit. The colleges are the sellers who have autonomy over the funds they receive. Therein is the power structure. Autonomy gives higher education institutions a sense of freedom and, to some degree once the institutions are given funds they theoretically have the ability to spend their money as they choose. However, real control over the institution remains with the government in a monopsony structure as the government manages colleges by incentives and through accountability
measures. HEIs are managed by tight controls and not through good faith. The theory behind a monopsony is that it pushes the cost of goods down near to the cost of production (Cooke, 2007). This is a good position for government, but problematic for higher education institutions whose leadership is constantly looking for funds sufficient to maintain their institutions. The combination of maintaining the cost of goods at their lowest level and control mechanisms ensures the government that the colleges are compliant, which tends to impact post-secondary institutions negatively.

The role of the Ontario Government is to collect and receive funds both federally and provincially and to distribute the funds. Education institutions are not its only beneficiary, as there are other publicly funded institutions, such as hospitals. The Ministry of Training, Colleges and Universities is the branch of government that deals with HEIs.

There are a number of instruments to regulate control, including funding formulas that over years of use have tended to drive the cost of educating students down. A funding formula combines a number of factors including tuition, government grants and mandatory fees. Government regulation instruments include tight control over campus costs, tuition fees and periodic grants for capital expenditures. A method of control that accounts for a small amount of revenue is the government administration of Key Performance Indicators (Hook, 2002, p. 4). Some accountability instruments are administered directly by the government while others are directed through the agencies that government creates.

Monopsony structures include influence networks between leaders at many levels. Relationships are formed between board members, politicians, and leaders within unions. Influence of leaders in key areas is essential to the monopsony structure and a requirement of maintaining control. However, colleges can act independently although the amount of
independence is restricted. Autonomous use of funds by HEIs is an example of independence. Finding strategies that attract other funding sources, such as revenues gained from rental space in food courts and bookstores are free from the scrutiny of the government. Cooke questions this approach to finding funding and calls the practice a perceived autonomy that may be doing nothing more than masking and confusing the college focus which should be on operating the campus and not on strategic efforts to find operational funding (Cooke, 2007).

The provincial government arm that deals directly with Colleges and Universities is the Ministry of Training Colleges and Universities (MTCU). MTCU-associated agencies that provide leadership to the colleges through strategic guidance are the College Council of Appointments and Compensation (CCAC) and the Post-secondary Education Quality Assessment Board (PEQAB). The Higher Education Quality Council of Ontario (HEQCO) is an agency of the provincial government formed in 2007. Agencies are helpful for provincial governance but they are problematic for college governance in three ways. First, there is a considerable cost associated with the provision and upkeep of these agencies. Second, their focus is to ensure that colleges and universities spend funds and educate students according to the agencies’ mandates, which at times can be difficult. Also referred to as “buffer” agencies, they give governance advice to the MTCU, which is the third problem for colleges, because the advice provided is often not made public until it has been reviewed and released by government. The time lag can prove to be problematic for colleges as it can result in delays that disrupt HEIs planning and decision-making (Clark et al., 2009).

*Finding funding.*

The level of support through funding by federal cash transfers and provincial funding is reliant on the economic health of the country (Clark et al., 2009). This is true in both Canada
and the United States. In economic downturns, the contribution is lower because revenue gained through taxation is lower (Archibald & Feldman, 2011). In difficult fiscal periods, Higher Educational Institutional leadership has either curtailed expenditures or has found new sources of revenue. A further problem with losses of revenue due to a downturn in the economy is that recovery of operating grants to past levels historically does not happen (Clark et al., 2009). However, there are opportunities to gain additional funding in the Canadian system in the form of funds earmarked for special needs, such as Aboriginal programs and people with disabilities. The problem is that these funds are one-time allotments of money that are usually time sensitive: *use it or lose it*. As well, the outcome of college expenditures is subject to government accountability measures. The money must be spent to satisfy the government and to fulfill the parameters of intent as outlined by government mandates such as to provide access to all students with disabilities (Lang, 2005). For colleges in Ontario, other revenue sources include student tuition, ancillary revenues and the sale of college land.

Student tuition is determined based on a funding policy often referred to as a funding formula. Funding formulas come in a variety of types but the most common are calculations based on student enrolment or “bums in seats” (Lang, 2005, p. 16). Ancillary revenues are those derived from parking and profit sharing ventures such as bookstore and food court sales. Funds gained from land can include the sale of property. These revenues might sound sufficient enough for independence, however, the funds gained from these ventures are neither significant enough to free colleges from their dependency on provincial funding nor enough to free colleges from the grasp of the monopsony structure (Clark et al., 2009).
Ontario institutions and their strategies.

Throughout their operational history, colleges in Ontario have seen cuts in government funding (Cooke, 2007). Damage occurred in 2003 and 2004 when Ontario reportedly ranked last in a provincial comparison of revenue per student. It was during this period that college per capita budgets decreased by nine percent. Further the 2006 environmental scan conducted by the Association of Colleges of Applied Arts and Technologies of Ontario (ACAATO) reported that college operating grants declined by 36% from 1990-2005. Even with the offset of increased tuition fees, total funding per full-time student declined by 25%. This scarcity of funds forced college leaders to make significant changes and to develop new strategies to ensure institutional survival. One strategy to offset losses in funding throughout this period has been to defer capital expenditures, estimated at $600 million with a growth rate of $100 million per year (Cooke, 2007).

As funds sufficient to support colleges have declined and revenues gained from students attending college have also declined, HEIs have looked for new fiscal survival strategies. These new strategies have taken their toll on campus facilities in three ways. One was through neglect of existing infrastructure. Second was to enrol students to over capacity, which increases the wear and tear on aging facilities. A third was to meet only the minimal requirements of HVAC, building code and technology standards. Leadership of many Ontario colleges has chosen to defer spending on campus infrastructure in difficult economic times – neglect is an expedient method to save money (Lang, 2008). Another strategy has been to coax students onto campuses without increasing the physical capabilities of the campuses. This strategy of increased access without increased physical support stretches the capacity of available classroom space that is normally designed to accommodate a maximum of 80% capacity to an increased limit of 85 to
90%. The added load coupled with decreased maintenance, causes physical deterioration of available facilities. Another strategy used by colleges to save money has been to ignore government requests to modernize their physical plants, as the modernization of facilities would cost more in the long-term than doing minimal maintenance. College leaders practice this strategy in order to save money and costly time on projects, and they succeed by maintaining the most fiscally responsible yet educationally irresponsible traditional general-use classrooms ("When efficiency becomes a liability," 2007). The aforementioned cluster of strategies, implemented by college leadership through pressure from the government, has resulted in the decline of facilities through neglect of both infrastructure and student interests in the struggle to deal in their own ways with insufficient and inadequate funds for operating colleges in Ontario (Lang, 2005).

The effect of inadequate funding on facilities.

The general-use classroom is a pocket of educational space found on all Ontario college campuses. Classroom space represents roughly 11% of the overall instructional and learning space within all colleges in Ontario (E.C.S., 2012) COFSI Report. At first glance this figure appears small but it represents a split of 34.5% space devoted to classrooms (type A1) and 63% of space devoted to purpose built laboratory (type A2) space. Although by comparison more space is devoted to labs and studios, it is classroom space that represents a large problem for campus facilities, leadership, educators, policy makers and government.

The impact of governance on spending on classrooms.

To begin to understand the problem of providing funds to change general-use classrooms from inflexible to flexible it is important to remember what was previously said about college governance. First and foremost, the governance structure of colleges in Ontario is a monopsony
that requires college leaders to look for strategies that can offset reduced government funding, and compete with other institutions for government funding. The government requires HEIs to file reports used to assess the amount of funding appropriate for the institution. An example of such a report was the ACAATO analysis of Capital Funding Priorities ("When efficiency becomes a liability.,” 2007). The purpose of this report was to provide evidence that colleges needed funding and would spend responsibly. Each college was obligated to provide examples of ongoing tasks and to include Board approvals and audits in public financial reporting in order to ensure transparency (Hook, 2002).

*Spending on general-use classrooms is the last priority.*

In spite of the rigor connected with reporting how funds are spent, there is a weakness in the system allowing leaders to devalue infrastructure. Leadership at both government and college levels has very little interest in making a connection between campuses as physical environments and campuses were students are educated. Leaders tend to view their physical campuses as nothing more than roofs over their heads, and facilities leadership see the campus as a cluster of buildings needing constant repairs. Canadian as well as American institutions see the two functions as separate pockets. Archibald and Feldman view education and campus space as a single entity, however, HEIs tend to value some factors over others (2011). Neglecting campuses to save funds is easier than reducing effective teaching, which might result in negative Key Performance Indicators (KPI). This would not be acceptable, as quality education is of great importance to educators and policy makers. For instance, the Fiscal Transparency and Accountability Act of 2004 states that:

*Colleges are highly accountable to students, communities, government and the taxpayers of Ontario. Comprehensive student, graduate and employer satisfaction data about all*
college programs are posted on college websites. In addition to regular financial reporting, colleges submit strategic and business plans to government and enter into annual Multi-Year Accountability Agreements (2012).

The strategy to neglect infrastructure has proven effective for funding efficiency, but the results have been hard on campuses facilities. That is not to say campuses have been completely ignored. For instance, in the 1990s, when HEIs were fiscally restrained, campuses facilities were largely left unattended and consequently fell into disrepair (Lang, 2008). The government solution was SuperBuild which was planned as one-time funding to increase campus capacity (Eves & Lindsay, 2000). The Canada Foundation for Innovation (CFI), a federal funding incentive, came the closest to addressing deferred maintenance problems by using language specifying its funding goals (Lang, 2008). SuperBuild and CFI funding have not addressed some issues that are and remain problems with campus facilities. Buildings need a constant flow of cash to keep them running properly but the infusion of funding for upkeep is inconsistent. When funding is given, educational leaders manipulated by government policies tend to steer funds that are needed for ongoing repairs and renewal of the campus away to other projects.

Funding inconsistency is problematic in two ways. First, buildings that are continuously neglected decay, and, second, ignoring building infrastructure is detrimental to students because the facilities do not support their needs.

The monopsony structure in Ontario allows college funding to be inadequate and inconsistent. In addition, the possibility looms that funding might not come at all. Funding says Lang, has “powerful steering effects”. An example of this concerned sectarian education institutions that were provincially funded in the 19th through to the 20th century. When, “sectarian factionalism became too fractious and inefficient government stopped it by
withdrawing public funding.” And to ensure the message was driven home to Higher Education Institutions, government re-directed all funds to secular institutions exclusively (Lang, 2008, p. 71). The result of a long history of inadequate funding, funding insecurity and the steering effects of funding has resulted in a continued focus on – what else – funding. Lang comments;

For the past two decades when higher education administrators have gotten together, the topic likely to come up – whatever the purpose of the meeting – has been money; that there isn’t enough of it, where and how to get more and what will happen if they get even less. (2008, p. 24)

For leadership of HEIs, the focus on money is constant and worrisome. Facilities leadership should be communicating with education departments to ensure they are on top of all recent changes, but this is not the case. Instead, college Facilities departments focus on leaking windows and heating and cooling systems, rather than on fixing inflexible general-use classrooms (Agron, 2006).

Funding earmarked for campus buildings can be used in one of two ways, for building maintenance or infrastructure for facilities supporting teaching, learning and student support services. Leaders have the opportunity to ensure their facilities meet current educational standards but frequently they do not make the connection that the upgrading of space will result in an improved educational experience for students. For example, in 2004, the Guelph-Humber building was erected on the Humber College campus while Dr. John Walsh was the provost. At the time of construction (2003 to 2004), there was an opportunity for Dr. Walsh to ensure his facility had new flexible classrooms. As a leader of Guelph-Humber he attended board meetings, which afforded him the opportunity to advocate for flexible classrooms. While the new facility was under development, Dr. Walsh was quoted as being connected with what was happening in
business (Jukes & McCain, 2003, p. 58). But the general-use classrooms in the new Guelph-Humber building were not changed. They were all inflexible and not learner-centered. As a leader in education, given the opportunity, Dr. Walsh and the committee that developed Guelph-Humber did not make the connection between the uses of open plan workplace space in business with flexible educational space. They missed the opportunity to ensure classrooms in this new college were flexible learning environments. They missed the trends in both education and workplace environments calling for open, collaborative and extremely flexible spaces (Lasker, 2012). Failure to change from the inflexible space cannot be because of a higher cost to provide flexible classrooms or even funding inadequacies, as both were available. Furthermore, issues relating to the high cost of changing equipment (desks, chairs etc.) from out-dated inflexible to flexible equipment suitable for general-use classrooms are unfounded as case studies do not mention that the cost to upgrade classrooms is necessarily higher. Additionally colleges have the opportunities to change classroom types when they ‘refresh’ the spaces.

There are two case studies that demonstrate that successful change can occur when funding and opportunity are available.

The article titled, *Making Demands*, discussed altered classrooms to accommodate technology. They comment that the cost of technology varies and requires investigation in order to fit the budget but the article does not say that the cost to upgrade is necessarily higher (Kirby, 1999).

The article, *Learning Space Design with an Inclusive Planning Process Promotes User Engagement*, *discusses* classroom redesign at Ryerson University. Redesign was conducted by committee. A cost overrun due to redesign was not indicated (Britnell et al., 2012). Evidence
does not indicate the cost or opportunity to change equipment (desks, chairs etc.) from inflexible classrooms was an issue preventing this institution from making changes to classrooms.

**Effective Classrooms Prompted by New Thinking and Innovation**

The exploration of literature examines how the general-use classroom can be an effective educational space when the following topics are taken into account. More than cosmetics examine factors that constitute meaningful change to learning environments. Devices explores the increased pace of technological change related to teaching and learning. The exploration of neuroscience examines advancements in the neurology of learning, environmental behavioural theory and their effects on space that matters. Space, place and employment examine factors about the workplace and employers who seek students prepared for their office environments.

**More than cosmetics.**

The realization that incidental modifications are not enough to implement change in classrooms has prompted new thinking and innovation. Literature informs us that cosmetic touches (decorating) are not enough to make important and lasting inroads supportive of learner-centered pedagogy (Lippincott et al., 2009). “I’d like to challenge the notion that brand new beautiful learning spaces in and of themselves cannot change learning. I believe that it has to be a combination of the space and the pedagogy and the technology. Further, in order to be effective and achieve student success changes should include total and absolute flexibility within learning environments”. Educational environments must be “malleable” and should be easily transformable (Lippincott et al., 2009, p. 10). Thus meaningful alterations to traditional general-use classrooms requires transformation to flexible spaces that lead to student success, and transformation of the general-use classroom is based on the total rethinking of all classroom tools supporting new pedagogy.
Before the year 2000, leaders in HEIs and government were struggling with the monopsony structure of college funding in Ontario. Obtaining funds, determining the distribution of funds and reporting how they were spent were essential. There was not much of a push to spend funds on change to learning environments that were new or innovative because not much was known about the benefits to students. In the years following 2000 came the rapid advent of personal technology devices. Everyone could see the changes taking place in college classrooms and corridors. Miniature devices became affordable and there was a steady stream of new upgrades available even before the old ones came off the shelf. Teachers and students alike used these devices. Accessibility and user friendly applications have made information instantly accessible and have re-oriented the classroom from teacher-centered to student-centered. Suddenly teachers find themselves delivering lectures while students check the facts on their own devices in real time. Jukes and McCain inform us “it’s time that educators recognize that we live in an intensely graphical world which makes the user of images, sounds & video chips a basic part of the communication process” (2003, p. 55). Millar comments, we live “in an era when a student can access more information through her cell phone than a professor can consume in a lifetime” (2012, p. 19).

Since 2000 there has been an increase in studies showing factors in the build environment that affect retention, attention, motivation, learning and academic achievement (Scott-Webber et al., 2013). Governments and educational institutions now struggle to keep up with infrastructure requirements, technological upgrades and a new demand for changed educational environments.

At the beginning of the millennium, neuroscience research indicated movement of students within classrooms is essential for learning as increased movement increases blood flow to the brain (Scott-Webber, 2012a). Collaborative workplaces further altered expectations of
education because businesses want graduates ready to function within an open innovative work environment. But have these new expectations changed the physicality of campuses? Although some spaces on campuses have changed to suit flexible learning, the inflexible general-use classroom is still the norm within Ontario colleges. A plausible reason for the continuance of the inflexible general-use classroom is it is ingrained into leadership methodology and leaders cannot explain why they hang onto it, other than it is a habit that is hard to break (Jukes & McCain, 2007). What is known is leaders have to unlearn this habit. Jukes and McCain warn HEIs leaders to “keep it simple and focus on what really counts,” to break away from old patterns and habits and to assume new roles. The responsible thing to do is let go of old ways that once made sense but now make no sense at all and to find a new future because the shift will benefit students (2007, pp. 1-12).

The role of leadership today concerns a new focus on what really counts: preparing students for graduation, which in turn should lead to employment in flexible, collaborative work environments. To accomplish this requires leaders in education and government to provide space appropriately designed to support the education of students.

Traditional general-use classrooms still in use today were originally designed for educational models that relied on instruction delivered in lecture form for students that learned by either the rote method or the teacher-centered model. The physical drawback to the continued use of the traditional general-use classrooms is its inflexibility which is contrary to current theories of teaching because it fails to support all types of pedagogical models (DeMille & DeMille, 2010). A newer pedagogical model preferred by some educators today relies on a multitude of innovative methods that change on the fly. This model necessitates upgrading teaching environments from traditional to flexible general-use classrooms (Scott-Webber,
The change from inflexible to flexible environments is necessitated by empirical evidence which demonstrates that flexible teaching methods coupled with flexible space improve faculty and student satisfaction, leading to student success (Britnell et al., 2012). The knowledge that student success can be improved by altering space leads researchers to question why traditional classrooms still remain the norm within Ontario’s campuses (Jukes & McCain, 2007).

**Devices.**

College campuses in Ontario were developed at a time when communication and computer technologies were in their infancy. Margaret Gillett describes the reaction to technology available in schools during the 1950s and 1960s. For instance, she comments the now seldom used and out-dated overhead projector was once seen as an unwelcome threat to teaching by faculty. It is hard to fathom that a simple teaching machine like the overhead projector was looked upon as an item that could undermine the established pedagogy of the era. Gillett also explains during the period of the 50s and 60s, there was an explosion of reading materials, magazines and journals. As well a new innovative machine for the time, the Microfiche Scanner was introduced into schools. It was capable of capturing and converting pages to film for storage. Not unlike the reaction to new technology today, teaching and library staff did not appreciate the introduction of this equipment. However, this was only the beginning as more devices considered useful for instruction were constantly being introduced to enhance teaching. “Other technological innovations such as overhead projectors, films, television are designed for group instruction. The most versatile and powerful of these is television” (Gillett, 1966, p. 288). In 1956 twelve American schools experimented with closed circuit TV. Canada’s first experiment in classroom television was in 1954 (Gillett, 1966, p. 289). An outcome was the introduction of new courses and new business sponsors for students in television technology and this led to the
introduction of the computer course. Gillett comments:

One manufacturer of electronic equipment estimated in 1965 that Canada would need 30,000 computer programmers by 1970 and offered to provide equipment, help establish laboratories, and assisted in the development of curricula for computer training in secondary and technical schools. (1966, p. 292)

At this period of time, colleges in Ontario were under construction, and there was no way to forecast the rapid advancements of technology that would occur within several decades. While there was a healthy respect for new technology there was no comprehension it would advance so quickly, would become as available, as mainstream and as much a part of everyday life as it is today. Likewise, planners of college campuses at the time could not possibly foresee the enormous changes that would take place over decades and could not have foreseen the need to provide the services necessary to support the technological infrastructure requirement needed today. Over the years colleges have tried to keep up and have provided services to keep pace with the demand for technological infrastructure change. Additions include Wi-Fi throughout colleges and drop-in computer stations, which have, to some degree, satisfied the student appetite for technology, but in most instances, the addition of technology is reactive and not strategic. This approach to technology is inadequate or failing because the technological applications are “outmoded approaches to education,” a strategy that “must be replaced with new and creative ways of thinking about designing leaning environments for this generation of students” (Dwyer et.al., 2008). In the area of teaching technology, there is little to support the current range of flexibility needed for the variety of pedagogical preferences in use today. Pedagogical types can range from static lectures to group discovery learning, but technology in the classical classrooms today still favours projectors allowing for only one static view at the front of the room. The
provision of projectors in the classroom only enhances, and in some cases replaces, the chalkboard. While there is a benefit to the device, it only augments and supports what is already there, a hierarchical classroom, and it does not alter the learning experience. Furthermore, the orientation of these devices does not change the configuration of the classical pattern, which is entrenched in hierarchical teaching. Additionally, adding Internet and Wi-Fi does not greatly change the rigid pattern of college classroom design. It only provides users with access to their own personal devices. It does not allow learners to share and collaborate. It is the use of shared devices and the interaction with technology that fosters shared knowledge at the center of new interactive classrooms (Dwyer et al., 2008).

Looking back to decades ago, it was impossible at the time to appreciate how much technology would impact colleges. Likewise, it is equally difficult to determine and make allowances for technology coming five decades from now. However, based on past experiences, we have learned our campus buildings must accommodate a future that is new, innovative, with events that are unforeseen. To meet these challenges, we must strategize and become far more flexible in order to absorb future technological changes that support learning in whatever format that happens to be.

**The Net Generation and technology; those we teach.**

The Net Generation is the broad descriptive name given to the generation born into technology. The time frame is those born between 1977 and 1997 but dates and other names conflict. They are also known as Generation Y, born between 1975 and 1983, and the Millennial generation, born between 1983 and 2000 (Rettie, 2002). Regardless of what they are named, this generation embraces technology and take constant upgrades in their stride unlike previous generations. Malcolm Brown, the Director of Academic Computing at Dartmouth College,
wrote, technology today has a “short shelf life” (2005, p. 30). Before we get the device out of the box it is considered old. The Net Generation is acutely aware of the obsolescence of technology. Unfazed, they transition from one device to another device. For designers of space, it is hard to keep up with constant changes as they continue to impact design decisions about education facilities. Brown offers a sound point of view for designers when assessing these learners, which is to acknowledge that new learning spaces are designed to suit this generation which is an ethnically diverse group of “multitaskers” heavily reliant upon network access. He begins by defining them as students whose learning theory principles are inclusive and active needing multiple learning paths for group interaction. Their preferred learning space is a small work environment, integrated into laboratory like facilities and they are highly IT integrated. The Net Generation also wants easy access to experts (Brown, 2005, p. 30). Neuroscience is following how technology affects these learners.

**Neuroscience, learning theories, technological advancements.**

Although physical changes to higher education facilities have occurred at an incredibly slow pace, there have been rapid advancements made in other areas. The influences of neuroscience, learning theory and technological advancements have reshaped ideas about learning space design including new construction and renovation. Researchers Brown and Long (2006) identify three trends in design. The first is supportive design space for social and active learning. The second is emphasis on human-centered design, and the third is increasing ownership of diverse devices that enrich learning. These trends are the outcome of a combination of technology and research that use many tools including, functional magnetic resonance imaging (fMRI) which is a functional neuroimaging procedure using an MRI, the microchip, and easy-to-use electronic devices and platforms that allow users to rapidly access information.
Whereas fMRI revolutionized the ability to look into the brain to see how it works, it was the advent of the microchip that advanced technology. Researchers Jukes and McCain declare the microchip is the fuel that has enabled our technological advancements. Without it, they say, everything would shut down. As for the advent of technology, we are on hyper drive. Technology is advancing faster than ever before and the trend is likely to continue (Jukes & McCain, 2003). Cognitive psychologists use computer models to help them understand how the mind processes and represents information when people perform certain behaviours (Braisby & Gellaty, 2005). One of the many educational performance behaviours of concern to cognitive psychologists is too much sedentary classroom instruction. They find that students do not like to sit still and listen to a teacher deliver lectures. Cognitive researchers have learned that moving around and accessing factual information from the internet produces deep learning that is remembered, whereas material learnt by rote or teacher-centered methods is quickly forgotten. They note project-based activities, a form of deep learning, are motivating, and collaborative groups encourage students to seek answers to problems thereby developing deep learning. Educators are still needed in the classroom, but they must assume the role of educational guides. Instead of lecturing to a class an educator would guide students, would monitor their use of technology and would help guide them toward solutions to problems they need to solve. As Wolfe comments, “The internet provides a speedy manner for researching topics for term papers and projects however with its increasing use many students will need guidance in determining the validity of data” (2010, p. 14). With this new understanding of learning comes the challenge of teaching students in a dynamic way within very flexible environments designed to support movement and technology.
What technology has produced is a new generation of digital natives who have changed the nature of higher education. Johnson and Lomas quote Prensky, who declared students today are not the ones higher education institutions were previously prepared for (2005, p. 24). Scott-Webber agrees (2012a). Jukes and McCain also concur and comment our students live in the age of a raw “data explosion” (2003, p. 54). This, they say, differs from an explosion of information in that we are now facing a technology explosion that provides quantity and not necessarily quality. These experts tell us that technology is an education game changer requiring the guidance of learner-centered educators in an active flexible space.

Considering that environmental behaviour theory concludes that space matters, environments impact behaviours, and that the advancement of technology is changing the balance of power in education from the hands of the educator to the hands of the student, the continued use of inflexible general-use classrooms is a symptom of a bigger problem in educational reform. I agree some educational reform has happened but overall the change has been minimal and very slow. I also agree a holistic approach to education and space must happen quickly. “Density, funding models, teaching practices and 50-year-old special designs are part of the issue” (Scott-Webber, 2012a, p. 10). If we do not change, we are looking at creating problems for our students who need skills necessary for the transition from graduation to working in the global world.

**Advancements in neuroscience.**

New understandings of brain function should have changed how educators approach teaching. Brain function research advanced rapidly in the 1990s with the advent of non-invasive brain scanning technology. Early in its development, educators recognized the expanding body of knowledge growing out of the investigation of the human brain. The new knowledge of how
the brain works was not confined solely to education but involved other disciplines and has resulted in an entirely new scientific discipline emerging from areas of expertise that overlap their spheres of knowledge. The joint study of education and brain function includes the fields of psychology, neurology and pedagogy. Sousa refers to this confluence of research from these three disciplines as educational neuroscience (2011).

Educational neuroscience differs from research conducted in past decades that could only superficially peek at the inner working of the brain. Early studies did not consider how the brain actually functioned because studies of the brain were confined to autopsies or were incredibly invasive and potentially harmful. Researchers, such as Piaget and Dewey, were limited to non-invasive observation of learners that resulted in instructional methods including processes of making meaning, time on task repetition, providing learners with appropriate materials for instruction and providing learners with reflective time. These methods were effective, but researchers could not explain why they worked (Ashworth et al., 2004).

Convergence; neuroscience with education.

The integration of neuroscience and education and the connection with educational space took time to develop. The information age in the 1990s was, relatively speaking, in its infancy. Advancements weren’t Googled, tweeted, posted to Facebook or blogged, so the flow of information at that time did not come as quickly as is does today. However, as early as June 1999, Pat Cross was writing about the movement away from traditional classrooms. She discussed the demise of the inflexible classroom and advocated for the flexible classroom on the basis of early outcomes of neuroscientists’ studies.

Neuroscientific studies in the early days were not free from criticism and scepticism. Wolfe commented that there were critics who called neuroscience a fad and predicted that the
fad would fade into obscurity (2010). But neuroscience has instead captivated our imagination and provided tools that help make decisions about what is best for students.

As neuroscientists continue to discover the working of the brain, cognitive psychologists look for explanations of learning behaviours and educators continue to apply improved teaching methods based on the outcomes of neuroscientific and cognitive studies. There is also another group of researchers not included in this list, researchers whose background includes the combination of design and education. Educational environments must be inclusive of all advancements, and space must change to reflect 21st century understandings of neuroscience, pedagogy, and supportive physical space (Scott-Webber, 2012a).

More recently, experts have urged educators and policy makers in HEIs to change pedagogical models from static lectures to mixed active learning experiences using different flexible space models. Their findings are based on key neurological evidence directly linking the brain with physical movement. Sousa’s research shows movement enhances learning and memory; he comments that, “These findings should encourage teachers to get students up and moving in their classrooms” (2011, p. location 302). He notes that it is body movement that brings additional fuel-carrying blood to the brain, and that the added blood flow allows the brain to access more long-term memory. As a side note, Sousa (2011) adds that movement was an ancient survival strategy. To accommodate movement within space, Scott-Webber comments designers should be charged with the task of thinking about space from the inside out, unlike the current method of calculating space in Ontario college classrooms, which is based on multiplying an arbitrary square footage number by the number of “bums to be accommodated in seats” (2012a). The appropriate support for new learning environments requires a different strategy in which designers are charged with creating spaces ensuring students move from a static position
to an active position with ease. For that, designers must provide active learning tools allowing students to move freely within their classroom environments (Scott-Webber, 2012a). This requires designers to re-evaluate current static tools, including the rows of rigid chairs and desks currently used within inflexible general-use classrooms, and to provide flexible tools allowing students to freely move within space in response to shifting pedagogical models. This change in general-use classroom tools and design strategies will accommodate numerous pedagogical models designed to include the type of movement recommended by neuroscientists.

*Environmental behaviour theories indicate space matters.*

Behavioural theories about educational environments consider that space matters – it can be both physically and psychologically supportive to students and teachers. The general-use classroom space in its current inflexible state is not supportive. It is structured to suit an old paradigm that is no longer useful. Further, neuroscientific studies inform us that continued use of this inflexible general-classroom environment will undermine psychological as well as physical support necessary for educational health. Educators and policy makers are urged to make change because well informed students are familiar with their educational needs and expect both psychological and physical support. Students currently in the high school education system are “profoundly different” from those currently attending higher education institutions, and will “vote with their feet and will choose not to attend” our HEIs if education environments continue to demonstrate a failure to prepare students for the future in which they will live and work (Scott-Webber, 2012a, p. 4).

Educational psychologists, including cognitive psychologists, advise educators and policy makers of the need to understand the complex influences on student behaviour that can either drive students away or provide a supportive environment that keep them in the system.
Educational psychologists emphasize the importance of observation within HEIs environments to ensure the wellbeing of students. What students observe within their surroundings is important to their feeling of comfort and wellbeing. Cognitive psychologists explore feelings of comfort and wellbeing beyond lovely paint colours on the walls and consider a language of seen and unseen complex signals that are present within the institution. Observational language used by education psychologists includes theoretical influences that cannot be seen but are definitely felt on an emotional level (Braisby & Gellaty, 2005). Psychologists tell us there is a need for students to move around the classroom and there is a clear indication the provision of movable furniture is important. As a designer I know the solution to this requires more than just providing movable furniture, but needs careful analysis and study. From my design perspective, interpreting workable design solutions to accommodate discoveries that are less obvious and far more obscure is a challenge. For example, design features that must be considered to support the findings of neuroscience and cognitive psychology include design elements ensuring emotional security. They consider environmental behavioural theory and the branch of neuroscience that informs educators and designers that emotions impact learning. Emotions that can drive students away from institutions are important for improving educational environments to minimize the negative experience of stress on students. Students must feel emotionally secure within their educational environment in order to thrive. Another emotional element driving students out of educational institutions is their self-esteem. College culture is characterized in part by its openness of communication, various levels of expectations and the amount of recognition in decision-making. All of these affect an individual’s self-esteem and all are hard to translate into solutions involving the built environment (Sousa, 2011). Neuroscientists, cognitive theorists and educators are challenged to find solutions that strengthen the positive aspects of the HEIs social
and cultural climates, but it is incumbent upon designers to ensure the environments they design accommodate these issues so students want to stay in the institutions and learn.

Designers are challenged when translating emotion into environmental solutions. Brain health is important and designers are charged with connecting students with daylight, colour and texture. Design solutions needed in new learning environments are complex as compared with the simplistic general-use classroom of the past. Classrooms today challenge designers to find solutions requiring analysis, creativity and diversity; learning behaviours should be identified and multiple types of learning spaces provided to support the new forms of learning. Using space as a tool means that size, shape, density, furnishing and technology must all work together in order to support new active learning behaviours (Scott-Webber, 2012a).

The application of environmental theory matters when the design outcome results in change and the change reflects positively. Newly built facilities thoughtfully designed for the new education paradigm are a place where educators and students enjoy the type of “intellectual collisions” that happens in new collaborative spaces (Farr, 2012, p. 9). Those give users the opportunity to meet socialize and exchange ideas. Furthermore, and perhaps more importantly, it is the provision of the kind of space that encourages students to stay rather than a space that drives students away.

The need to provide supportive educational space is widespread. It is not only a concern of Humber College, whose campus in Ontario consists primarily of inflexible traditional general-use classrooms (Ta, 2012) but also other HEIs that continue to educate their students in inflexible classrooms. The problem with the continued use of inflexible general-use classrooms is of great concern to researchers from many countries, including the United States (Sousa, 2011), Canada (Braisby & Gellaty, 2005), Great Britain (Temple, 2009) and Japan (Williams, 2006).
Researchers increasingly realize space matters, and space matters even more when it does not change. Inefficient uses of space create roadblocks that are easily recognized by their users, but conditions must deteriorate to the point where they are crippling, resulting in damage to society at large, before change occurs (Rullman & van den Keiboom, 2012). The need to talk about critical issues relating to education, neuroscience and design can bring interested parties together to discuss strategies that will foster change. For instance, researchers Rullman and van den Keiboom reported findings from an American think tank titled, Physical Place on Campus; A Summit on Community. This think tank was a coming together of ten higher education institutions and fifty architects, consultants, students, faculty, campus administrators and association leaders who met over three days in October of 2010 to discuss how drastic the problem of physical space in education had become. It was organized in order to recognize that campus space is a physical community, which incubates society. With that as the main agenda, the summit participants discussed ways to align and transform physical place and to explore how effective physical space can make appropriate contributions to the learning and civic goals of higher education institutions (Rullman & van den Keiboom, 2012). Wolfe, an expert in neuroscience education, agrees that there should be more dialogue taking place between groups, because space matters (Wolfe, 2010).

**Space, place and employment.**

A recurring question asked is why business environments have changed both physically and technologically, but higher education institutions have not (Jukes & McCain, 2003, 2007) and (Scott-Webber, 2012a,). Researchers are puzzled by this phenomenon because they are concerned students will not be prepared to transition from school and take on the challenges presented by open collaborative global workplaces.
Jukes and McCain observe important change has occurred in business because it is competitive, but higher education institutions look and feel the same as they did fifty years ago (2003). The reasons for this difference are multiple. Millar blames the failure to change on educators who are digital immigrants and have not kept up with current technological and global change. She further comments this view is noticed in our education environments which reflect space familiar to old methods of “widget making” (2012, p. 20). Jukes and McCain article, Beyond TTWWADI (That’s the Way We’ve Always Done It), agrees but adds the current state of educational environments is due in part to educators and policy makers who are asked to change the “most fundamental parts of themselves and belief systems.” The root of the problem lies in the ingrained habits of educators and policy makers whose rationalization of educators and policy borders on insanity (Jukes & McCain, 2007, p. 10).

Convincing educators and policy makers to connect work with teaching environments is challenging. College strategic plans make a connection with business and pledge to students their commitment to “high quality services to support student success and business practices ” (Embree, 2008, p. 2). However, the pledge does not include an explicit match between work environments and educational space. The continued use of inflexible general-use classrooms on campuses demonstrates educators and policy makers alike do not recognize physical space is an important part of the connection with the work environment because the continued use of the inflexible general-use classroom does not reflect current work standards. Research indicates educators and policy makers need:

- to send students a clear message connecting what students are learning with what they need in the work place
• to come to terms with current neuroscience studies indicating the beneficial interface between the working of the brain, space, place and learning

• to break old habits by reflecting current work environments on campuses so students can be prepared for the physical demands of the workplace.

To send a clear message connecting what students are learning with the workplace requires an understanding that work environments are a reflection of who we are and what we want to do. Education spaces should reflect our chosen professions and should include program specific environments that mimic the workplace. How we see ourselves as professionals connects with how we perceive our professional environments (Holland, as cited in Smart et al., 2006). The importance of Holland’s theory concerns choices; where people go to school and why they choose to work within a profession. They are in part a decision based on the physical environment that is the physical entity reflecting our professional aspirations. For instance, spaces allowing more collaborative teamwork build strong social networks. They also attract new talent who want to work within that sort of environment as the kind of space matters to them (Farr, 2012). The replication of workplace and educational spaces should send a clear message to students that teaching spaces are no different than workplaces. Our current general-use classroom environments cannot send that message because the rigid general-use classroom reflects out-dated mass education practices. The University of Toronto and St. Michael’s Hospital space described in Farr (2012) is a good example of education integration allowing students to make a smooth transition from teaching to workspace.

Educators and policy-makers need to come to terms with current neuroscientific studies indicating a beneficial interface between the workings of the brain, space, place and learning. Badger connects neuroscience with old and new architecture by looking at studies of the brain
conducted by neuroscientists and cognitive psychologists whose outcome identifies why people feel more comfortable in one space than another (2012). He comments that the interface with architecture is important because the brain processes psychological and social responses to the environment and then reacts – so poorly designed or well-designed space is measurable and its quality is significant to its users. The brain assesses space using multiple criteria to include spaces deemed unsafe or negatively reflecting self-esteem. Experts in the field of neuroscience find students within negative environments fail to thrive. The study of space is not confined solely to how we feel but assesses how we work, and measures its ability to support human achievement. These include past memories of other environments and previous physical experiences that return when we enter spaces. These also include experiences received from new space. To that end place and memory are connected through recollection of light, layout, texture and colour. All might provide sensory experiences that neuroscience demonstrates produce the best brain responses (Badger, 2012). Educators and policy makers therefore need to fully understand connecting students with space matters and this connection underpins efforts to advance confident students who achieve better grades and are equipped to make the transition into work environments.

Educators and policy-makers need to break old habits by reflecting current work environments on campuses so students can be prepared for the physical demands of the workplace. Open area workspaces in offices ten to fifteen years ago ranged from 200 to 225 square feet, but the current trend in office space is 150 square feet per person reflecting a twenty percent reduction (Lasker, 2012). Spaces ten years ago were designed for one seat per person, but employers comment that today, workers do not occupy their desks all the time, so not all employees have dedicated workspaces for every worker any more. Very few modern workspaces
have enclosed environments. New office models include the provision of work spaces for people who do heads-down work, but the majority of space today allows employees to work anywhere and at any time within the office (Lasker, 2012). Flexibility and collaboration within open space is a key component in today’s office environments. For example, the Toronto Dominion Bank Group mandated a centralized flexible work environment because people wanted to work anywhere they can and at any time, either collaboratively or on their own. This included the option of working from home and coming to the office only for meetings. The change in office working methodology has given way to the reorganization and rethinking about how space is used. In an office, the physical environment is primarily open stations with collaborative meeting areas. “It is not just a trend but a reality for today’s corporate office” (Lasker, 2012, p. 10). This trend is not reflected within our college campuses. Traditional general-use classrooms remain completely inflexible. As such, they do not facilitate a smooth transition from education to work place environments.

In addition to functioning in a way contrary to current educational theories that inhibit a smooth transition from the classroom to workplace, current classroom spaces hierarchical in structure tend to be physically devoid of character. Although this might be considered a matter of opinion, the spaces tend to lack energy because of the regimented patterning, which is static by nature. Researchers claim these classrooms are “antiseptic environments consisting of white rectangles with overhead lights and bland tiled floors,” whereas human beings yearn for sensory stimulation with spaces that provide light, colour and interesting room shapes (van Note Chism, 2006, p. 2.7). Additionally, hierarchical general-use classroom spaces continue to be designed for the singular purpose of didactic teaching. For students, inflexible classroom orientations fix their direction of view to eyes forward and it sends them the message they have only one option,
and that is to pay attention to the teacher at the front of the room. From the view of the teacher, the space affords little opportunity to be flexible, collaborative and interactive with students. This type of environment has a negative effect on learning (van Note Chism, 2006). Space can either bring people together or drive them away – “space that is flexible and networked brings together formal and informal activities in a seamless environment that acknowledges that learning can occur any place at any time” (Oblinger, 2006, p. 1.3).

**The call for change from students and parents.**

We are informed by literature that the most influential group to speak for change to the existing classroom condition is students. Students do not want boring static spaces. They want their college spaces to meet their education and social expectations. In addition, they want their environment to support their ergonomic, social and learning objectives as well as the maintenance of their personal devices (Oblinger, 2006).

As we have come to understand more about learners, how people learn, and technology, our notions of effective learning spaces have changed. Increasingly, those spaces are flexible and networked, bringing together formal and informal activities (Oblinger, 2006).

Unlike other generations, today's students are beginning to look for space to collaborate, network and plug in. Andrew Milne describes millennial students as “digital natives” who have redefined the meaning of cut and paste from paper and scissors to digital manipulation (2006, p. 11.11). These tech-savvy students “have no fear of technology. Mobile phones, digital cameras, and MP3 players constitute today’s backpack. Browsing, downloading and messaging can happen anywhere and anytime” (Oblinger, 2006, p. 1.2). In fact, all of the aforementioned activities happen all of the time. However, I observed that on one of the campuses studied in this thesis, there are very few spaces available for students to plug in their devices, and it is not
unusual to see students huddled on the floor in corridors with all types of devices plugged into an adjacent duplex receptacle. Likewise with the proliferation of laptop computers, it is not unusual to see students lining the walls of a classroom with their devices plugged into any available socket. Providers of college spaces cannot help but notice the clusters of students in hallways as well as the proliferation of electrical devices invading every crevice of the education environment. In current classrooms, conditions are inconvenient as well as hazardous, and students are starting to voice their opinions about the suitability of old facilities – and, more importantly, so are their parents (Dwyer, 2010). Both students and parents feel the cost of education is high and they want suitable facilities that reflect their financial outlay.

**The call for change from educators.**

Another group exerting pressure on colleges to create physically supportive change are teachers who recognize spaces are impeding their ability to use pedagogy effectively. Additionally, they recognize the environmental structure of the classroom must support their teaching strategies (Graetz, 2006). Teachers are growing frustrated with antiquated classroom environments. One teacher, Dr. Scott-Webber comments, “I’ve seen the insides of more classrooms that I can count. Many of them are an insult to students and teachers alike” (2012b, p. 142).

Teachers who understand current best practice learning methods realize that changing the design of current hierarchical classrooms requires significant modifications to traditional assumptions about the design features of classroom space. By altering the design message, they can create spaces for learning that are rich and meaningful. However, to date, very few institutions appear to be taking notice. Consequently, teachers are not using their full pedagogical arsenal – if a space will not support interactive learning, then teachers will not use
interactive teaching techniques (Britnell et al., 2012; McWilliams, 2005; Neill & Etheridge, 2008). It is difficult to rearrange seating and tables in hierarchic classrooms in order to form interactive, collaborative groups. In order to make change to antiquated classroom spaces leaders within the colleges need to recognize that institutions of higher education are places where community experts foster learning and support a multitude of teaching experiences in order to engage learners. Teachers in higher education institutions should be challenging higher order thinking and should be encouraging abilities and communication skills. Well-constructed space designed appropriately to support these endeavours is one of the most important campus tools needed to achieve this goal.

The current stagnant classrooms are not what our students or faculty want. In fact, the learning experience is impeded by the design of the hierarchical general-use classroom. Current students have a preference for doing rather than listening, and for them, experience counts. Both faculty and students want environments to support a variety of active pedagogy; “There is value from hands-on active learning as well as from discussion and reflection” (Oblinger, 2006, p. 1.2). Students are expressing they want to move around and work within their learning environment. They do not want to be lectured to all of the time. Students also appear to have a need for entertainment. The millennial generation has grown up with instant gratification and expects teaching to be fun and exciting. In addition to an active and fun learning experience, these students are predisposed to social interaction. Even though they might be texting to others in virtual space, they enjoy doing it within their social group over coffee. Learning now has to be creative, use technology, and be flexible, stimulating and exciting, as well as equipped to give instant feedback (Shaw & Fairhurst, 2008).
With a clear picture of what millennials want, we can see why our current stagnant environments tend to turn students off learning. Classic classrooms tend to be dull, boring and frequently uncomfortable spaces. According to Graetz (2006), learning and teaching environments should be “quantifiable,” meaning tactile, visual and stimulating. He comments that students do not enjoy common institutional-feeling spaces that are bland and without character. What they want is space that has real objects that have real meaning. A designer of space might interpret that comment to mean areas with windows that connect to a view or spaces that include interior walls with texture and character. Graetz notes that, within teaching environments, students are “awash in environmental information, only a small fraction of which constitute the sights and sounds of instruction” (2006, p. 6.1). He notes that environments that are less industrial in appearance and are not stark and boring tend to enhance learning. In addition to visual enhancements, Graetz suggests an appropriate overall environmental structure should include air quality, lighting and situational comfort within a classroom in order to support learning (2006, p. 6.2). Unfortunately many of the classrooms built during the 1960s were designed and built without attention to proper heating, cooling or ventilation (Swan, 2010). Graetz argues that if lighting, temperature and other essential conditions are conducive to creature comforts, then users of the space can relax and learning can happen. However, overcrowded or uncomfortable spaces that cause discomfort can be expected to interfere with learning (Graetz, 2006). Conversely, learning improves with environmental enhancements. For instance, daylight makes a difference. A study by the Heschong Mahone Group conducted in 1999 studied more than 2000 classrooms and concluded that students in classrooms with daylight improved twenty percent faster in math scores and twenty six percent in reading scores over one year when compared to students in classrooms without daylight. The follow-up study confirmed
a benefit to teachers as well (Gee, 2006). In other words, if people aren’t comfortable and don’t have a sense of well-being they become distracted and it is up to designers to consider the factors that make people feel comfortable. Making people feel comfortable within their physical environments will free their brains and bodies for learning (Gee, 2006). Other studies also show that environmental variables can impact learners indirectly and these effects of different physical settings often depend on the nature of the task and the learner. For example, distracting noises appear to slow reaction times and degrade performance to a greater degree in older versus younger adults and for introverts to a greater degree than for extroverts (Graetz, 2006).

Advocating for improvements to existing classroom conditions is necessary in order to enact change. Change is necessary in order to support the next generation of educators and learners because supportive and appropriate space modifications will benefit the users of general-use classrooms as well as other equally important college campus spaces.

**The call for leadership.**

The flow and exchange of expertise should not be halted due to silos of expertise working in isolation. Yet there appears to be four silos that work in isolation, without cooperation and collaboration. They are; faculty, students and their parents, information technologists and administration (both Facilities Planning and Management departments). Not everyone or every department in colleges intentionally isolate themselves. Nonetheless it is a way of doing things that is detrimental to the flow and exchange of expertise needed to change the physicality of the classic general-use classroom.

Bickford and Wright comment; there has been a tradition within colleges to maintain administrative silos creating information roadblocks. They write, “Tradition encouraged specialists attend to their individual areas; faculty develop pedagogy and curriculum, information
technologists make decisions about technology and facilities managers design and develop classrooms and other spaces” (2006, p.4.4). I found the situation described in 2006 is still present today. Individual areas of expertise remain in four silos in literature. One such silo of expertise is the faculty. The report produced by Lackney and Jacobs investigated teachers’ use of the physical setting find faculty in general tend to focus on pedagogical and interpersonal issues while ignoring the physical-spatial context in which the teaching learning process occurs (Lackney & Jacobs, 2002). Within the second Information Technology silo, decisions are made about equipment type and placement without consulting other silos. Technology has become a “prosthetic culture” in this way – IT simply reproduces technology based on past requests that rely on old habits (McWilliams, 2005, p. 2). The third silo is Facilities Planning and Management, who design and develop classrooms and other spaces using strict out-dated physical standards. The fourth and last silo is the students and their parents, Faculty, IT and Facilities Planning and Management departments tend to hear but do not listen to the changed needs of this group. Likewise students tend to remain within their own silo, though the previously scattered students within the silo are increasingly connecting to each other. As they gel, they devote less time to instruction-driven learning and push toward a campus community that will reflect their needs as a way of life, “as a way to improve student, faculty and staff engagement and learning” (Bickford & Wright, 2006, p. 4.4). Students and researchers alike believe this change can be accomplished by improving learning space design, technology and pedagogy holistically.

Teachers, students and students’ parents are beginning to realize that current facilities are not working, but they lack a champion to help make change. Additionally, they lack the way in which to produce spatial change. However, they possess a powerful tool that will at some point
ignite change: they are the connected generation. They are socially networked to each other like never before and they constantly interface with each other. Their technological interface has enormous power because it can reach and sway so many within seconds. Just a few tweets from a Twitter conversation can be beneficial or harmful to a college and has the potential to stimulate change. The millennial generation wants leaders to care about their learning experience.

Bickford and Wright (2006) ask why we should care whether or not these spaces change in order to provide appropriate learner-centered space for students and teachers? The answer is grounded in the outcome of the teaching experience, which is to improve learning for students, to do everything possible in order to provide the best experience for students. They argue that, despite multiple theories about how people learn, they agree on one point: the critical nature of interaction. In particular social cognitive learning theory argue for a rich environment in which student and faculty share meaningful experiences that go beyond the one-way information flow characteristic of typical lectures in traditional classrooms (Bickford & Wright, 2006, p. 4.3). Similarly, Gee comments that, “A collaborative and committed team can create a stimulating process and produce innovative results” (2006, p. 10.12).

**Case Studies and Reports; Effective Classrooms**

Case studies and reports about learner-centered methods, models and other new innovations in education inform us that student centered pedagogy accommodated by appropriate space improves student success. They point out that hierarchical general-use classrooms are problematic for teachers and students who try to utilize learner-centered pedagogy within the confines of the hierarchic, traditional, classic educational model. Reports are studies that inform us of the need to make change. Case studies define the problem, find a physical solution, test the solution and summarize the results.
This research study notes that while studies and reports are insightful and indicate a positive direction, they have not resulted in very much change to physical space within college classroom environments. This study questions why the outcome of case studies and reports demonstrating good design alternatives to classrooms appear to be ignored on some campuses. To discover why change is slow, this study explores factors that become priorities in the decision-making processes that influence administrators of campus space to choose one type of general-use classroom over another. The following case studies and report ask teachers and students how changes from inflexible student centered to flexible learner centered classrooms worked for them. It questions whether the changes benefited the users. Noted is the perspective of inquiry that is from the point of view of teachers and students. Not from administrators whose cooperation had to be obtained from the start in order to facilitate the study. The fact that feedback from these case studies and report has come from students and teachers is important as it informs us that the decision-making processes of administrators was in line with learner centered outcomes at their respective institutions. In contrast, the research conducted for my study questions administrators whose decision making processes appear to stall changes from inflexible to learner-centered flexible classrooms.

The Community College Survey of Student Engagement (CCSSE) Report.

The CCSSE is a report. For the purpose of my research study, it was important to understand that student success can be achieved by measuring the outcome of a flexible teaching methodology. The outcome of the CCSSE is meaningful because it indicates two factors both of which are good predictors of academic success, (1) active and collaborative learning, and (2) academic challenge (Mandarino & Mattern, 2010). The study conducted by Mandarino and
Mattern also finds the use of collaborative teaching practices including learner-centered pedagogy will positively affect students’ GPA (grade point average).

The outcome of research conducted in the CCSSE demonstrates that HEIs support learner-centered teaching (CCSSE, 2010). However, I noticed in this study there was a divide between theories and the physical environment, that is, the tools (chairs, desks and display surfaces) to adequately support flexible teaching were not apparent. I visited the college shortly after the CCSSE study was completed. A site review of the campus revealed that all general-use classrooms were inflexible. The absence of flexible spaces indicated there is a gap between the physical tools, best practices and learner-centered pedagogical practices. I believe this gap is quite serious. Ignoring the physical contribution supporting the theories is like eating chicken noodle soup with a fork. Yes, it can be done, but using an appropriate tool – in this case a soupspoon designed for the process of eating soup – would be extremely advantageous.

Activities, including teaching, are most effective when users are given the right implements for the job.

Case studies.

While reports like the CCSSE (2010) indicate the importance of learner-centered pedagogy, it is case studies that demonstrate effective outcomes through the implementation of solutions, pre-testing and post-testing of the solution, data production and assessment, and summaries of the outcomes of the studies.

Included in this section are examples of case studies where classroom tools have been changed from hierarchical row-and-column to flexible tools supporting learner-centered pedagogies. Three of the case studies that follow identify a partnership with furniture manufacturers while three do not.
Studies in partnership with a furniture manufacturer are; NODE: Keeping Pace with Active Learning (Steelcase, 2010); Learning Studios Project, Estrella Mountain Community College (Lopez, Garcia, McGoff, & Benton, 2009) and Built Environments Impact Behaviours (Scott-Webber, Strichland, & Kapitula, 2013).

Case studies that do not identify a working partnership with a furniture manufacturer are; Working in Progress-Flexible Learning Environments to Improve Interdisciplinary Creativity and Team Interactions (Kim & McNair, 2009), Flexible learning spaces; The integration of pedagogy, physical design, and instructional technology (Neill & Etheridge, 2008) and Learning space design with an inclusive planning process promotes user engagement (Britnell et al., 2012).

The first three case studies are conducted in partnership with the tool manufacturers and the learning institutions. This can be seen as a limitation of the study. With these studies the problem is defined, a solution is determined, the solution is tested and the results are published. These studies could be considered unique. Most manufacturing companies producing tools (seating, desks and writing surfaces) do not enter into partnerships with education institutions and publish the results. Instead, most manufacturing companies rely on dealerships to supply their tools and the dealerships in turn work directly with end users. Additionally the dealerships do not publish results. The identification of brand name products used in case studies sponsored by manufacturers is a limitation, as it might be considered a conflict of interest, which is problematic in that the outcome might appear to be biased. However, the benefit of case studies like these is the contribution they make to the body of knowledge.

The study conducted by Steelcase at the University of Michigan identifies a product and demonstrates how it was used, whereas the study conducted at Estrella Mountain Community College, does not name product directly, but in the reference section Herman Miller is
acknowledged as a partner. It should be noted that both Herman Miller and Steelcase design as well as manufacture commercial products used in a variety of industries. The difference between these and others supplying institutional products is that they employ ergonomists, conduct rigorous tests of the products they manufacture, and publish the results. These two companies also employ scholarly researchers who conduct studies and publish their findings.

*Good, better, and best.*

In order to understand the importance of the case studies included in this research, it is necessary to explain how designers evaluate the quality of the tools assumed appropriate for their project. Lawson explains that designers use a process of selection requiring a mapping out or range of ideas (1997). The process of design requires sifting through many variables to arrive at the right choice that satisfies as many options as are possible. The design process also requires definitions based on what designers refer to as the human condition.

First and foremost, my research defines furniture as a tool supporting the human condition that should satisfy the health and comfort of the user. Moreover, this definition concerns what is appropriate for users within the college classroom. A tool supporting the human condition can be a useful tool or not, and the determination is based upon a number of factors, 1.) the research that went into the reason why a product was deemed necessary (user-centered, observation research), 2.) the product (anthropomorphic evaluation to suit ergonomics), 3.) the quality of the materials used, and 4.) the methodology used in manufacturing. It is common knowledge within the design industry that there are strata of manufacturers that produce lower priced goods and higher priced goods. It is important to consider what differentiates the right tool from an inappropriate tool that is useful for the user.
There are many manufacturers of desks, chairs and other tools used by colleges. These manufacturers have departments that cross over in function, that is, some products can be used for hospitality as well as education. The essential question is how to determine the right tool for the intended purpose. One way is to assess the manufacturer based on reputation, and that can be benchmarked by their internal research and product-testing capabilities. A number of manufacturers have research departments dedicated to investigating industry trends for offices, healthcare, hospitality and education. A smaller number also maintain in-house research staff that focus on product, ergonomics and sustainability. These departments are expensive to support but the outcomes of their research result in superior products. In addition, how well a tool might be designed, and how expensive or inexpensive the right tool is, is important to the functionality of the overall space. Manufacturers maintaining their own researchers and publishing the results in a scholarly manner provide the design industry with products that act as benchmarks for tools maintaining the highest integrity.

The following case studies consider what teachers and students within HEIs in the United States and Canada think about changes made to classrooms.

**Case study: University of Michigan.**

This study, conducted at the University of Michigan, addresses changes that occurred because the university questioned whether the classrooms had kept pace with a generation of new learners (Steelcase, 2010).

The study was conducted in partnership with SES (Steelcase Education Solutions). Preliminary research included trend analysis, ethnographic studies and the analysis of photographic data. Researchers conducted interviews in more than 35 classrooms at 12 universities and found that “most classrooms act as barriers to collaborative learning rather than
a tool for learning under the demands of today’s teaching pedagogies” (Steelcase, 2010, p. 1). Documented examples of multiple teaching modes inhibited by row-and-column tools included the need to move desks and chairs to facilitate the sharing of documents, moving desks and chairs configured from a previous class, empty chairs at the front of the class which act as a barrier between student and teacher, students looking over and around other student’s heads, the stretching of aching backs due to rigid, non-ergonomic seating, students sitting in discomfort due to long classes, and students sitting sideways in order to have conversations with team partners.

In this study, the Node chair (an integrated seat with writing surface designed for flexible classrooms) was introduced into a test site involving a non-dedicated general-use classroom that had previously been a hierarchic teaching environment. Over a two-month study, ninety students were tested. The Node chair transformed the space from a static hierarchical learning environment into a flexible learning-centered environment. Students were studied through a user survey, which focused on the learning and classroom experience and student comfort level in class.

Student’s approval ratings for these areas of focus ranged from 88% to 100% approval. In addition to student feedback, several instructors were questioned. They reported “significant improvement in their ability to reach and engage students” (Steelcase, 2010, p. 5). The summary noted that the simple act of creating flexibility within the classroom can significantly improve students’ and educators’ abilities to utilize flexible teaching tactics within the classroom.

**Case study: Estrella Mountain Community College.**

This case study took place in 2005 and 2006 and was a partnership between the college, Herman Miller (the manufacturer) and a local dealership called Goodman’s Interior Structures.
Prototype facilities were developed to test class experience, “operating on the principle of radical flexibility, the design setup space, furniture and technology to be changeable on the fly, not only making the rooms adaptable and more engaging but also enabling experimentation and further refinement by students and faculty using the studios.” (Lopez et al., 2009, p. 19.11). The project included furniture tools as well as lighting and wireless technology. The two test spaces set up in 2005 each utilized rooms of 900 square feet. Based on extensive feedback, the model spaces developed in 2005 were improved in 2006. The improved model built in 2006 included 22 new spaces.

The outcome of the study indicated that 87% of the faculty surveyed preferred the learning studios to traditional learning environments. Significant features were expressed as: access to technology + interaction + comfort = greater engagement” (Lopez et al., 2009, p. 19.15).

The flexible environments increased the interrelationships between students and faculty and provided easy access to technology. The introduction of learning-centered flexible environments avoided the student passivity and isolation commonly associated with traditional classrooms. Barriers were lowered between participants and the revised space fostered participation even among students normally reluctant to participate. Flexibility allowed the space to be customized according to need. The ability to easily move tools around reflected student engagement with activities initiated by diverse teaching styles. Support of self-directed learning broke down hierarchies and gave students the ability to conduct group research. The classroom studios were described by participants as inviting environments.

This case study confirms flexible studio environments leverage physical space to support pedagogical goals, engage students, and it frees faculty and students from the physical limitations of the hierarchical classroom allowing them to change pedagogical demands on the
fly. The space becomes a dynamic learning environment, which contributes to sustaining faculty and student activities. Furthermore, the flexible learning-centered environments studied encouraged a multitude of learning types from formal to informal and encouraged research, creativity and collaboration (Lopez et al., 2009).

**Case study: Active learning and post-occupancy evaluation.**

The goal of this case study conducted by Scott-Webber, Strickland and Kapitula (2013), was to assess whether or not an intentionally designed intervention has had an effect on student engagement in the classroom. The thesis considered that post-occupancy evaluation is important in designing evidence-based educational spaces connecting intentional learning behaviours with pedagogical practices. A test instrument was devised to evaluate student engagement. It proved to be valid and reliable for future use and would validate evidence-based design solutions. Students were asked to compare their inflexible row-and-column environment with their new flexible environments on the basis of identified student engagement factors. Steelcase provided no professional development to the educators. The results of statistical analysis indicated that an investment in flexible learning spaces is likely to effectively support active learning and improve student engagement levels. This study indicated new flexible learning solutions were positively associated with student engagement and active learning practices. Environments impact behaviours. The study has positive implications for decision makers in higher education, members of design and architectural communities, students and educators. The implications are that post-occupancy testing indicated, active learning environments positively impact student engagement and outcomes (Scott-Webber et al., 2013).
**Case study: Virginia Tech.**

This case study documented the ability of two interdisciplinary teams to work together and tested the effectiveness of a restructured learning environment that utilized tools differing from formal hierarchical tools (Kim & McNair, 2009). Additionally, this empirical research study gained insights into what might be factors enhancing the creativity of interdisciplinary design teams. The focus of this study was to investigate how students perceive and interact with flexible interdisciplinary learning environments and creative teaching processes and feedback was to give an insightful understanding of how factors impact student creativity (Kim & McNair, 2009).

The study recruited twenty-one students from a senior-level interdisciplinary design class at Virginia Tech for one semester. They were divided into five teams and were given a challenging project to be completed within the semester. To enable the flexible use of physical space, the classroom featured movable tables not oriented in any particular direction with the space, and numerous mobile white boards. Researchers encouraged students to be social and to self-organize their teams. Additional tools were interactive technology. The data was organized by two coders who transcribed all meetings with teams as well as observed the teams in order to assess the perceptions of the impact of flexible learning environments on creativity. Preliminary results confirmed a positive impact of flexible learning environments and interdisciplinary team interactions based on changes made.

The final results of the exploration determined a higher level of team interaction corresponded to a higher level of creativity as compared to their past experience not including these changes. The case study confirmed, “the positive impact of flexible learning space and tools as well as interdisciplinary team interactions on creativity of student engineering design teams” (Kim & McNair, 2009).
Case study: Higher Education Institutions in the United States.

This empirical study was conducted in the United States in an undisclosed higher education institution that included students from these programs Business, Arts and Science, General Education, Social Work and Computing and Software Systems (Neill & Etheridge, 2008). Data collection and testing took place over a single autumn and a winter semester. The study assessed teacher and student reactions in a flexible-use classroom including three elements that were different from the inflexible general-use classrooms within the vicinity, but not necessarily used by the same students within the same program. The single general-use classroom used in this study was transformed through differing approaches to teaching and learning, the adoption of instructional technology, and the application of effective physical design supporting both teaching and technology. Surveys were used to assess and compare faculty and student responses to the two different classroom spaces.

The results of the surveys and data showed that flexible learning-centered classrooms allowed students to try a variety of new things whereas the inflexible general-use classroom did not. Furthermore, the flexible general-use classroom provided students with the freedom to explore different learning models. The flexible learning space allowed users to experiment with different approaches to developing educational material. It gave rise to new solutions to old problems and in turn to new innovative pedagogy. Overall, the researchers discovered the flexible general-use classroom was given a high rating and was recommended to others because it allowed for ease in arrangement of space, flexibility and support of computer use, flexibility for users to participate in the activity of the reconfiguration of the space in whatever manner best suited the learning situation at the time. A drawback to this study was it did not test how the
room alterations changed behaviour or how the space impacted learning (Neill & Etheridge, 2008).

**Case study: Ryerson University.**

A study conducted at Ryerson University in Toronto explored learning environments from a pedagogical perspective including learning space design and technology, how teachers teach in classrooms, and student learning as they react to learning space (Britnell et al., 2012).

The article discussed a classroom transformation from inflexible to flexible at the beginning of a semester. The decisions about changes were made with an interdisciplinary committee and assessments of success were made after the space was used. The research and evaluation found the interdisciplinary group of faculty and planners followed the recommendations made by a growing body of literature, research in this area and, the knowledge gained was inclusive of best teaching and learning practices (Britnell et al., 2012). The conclusion of the research was that the space design resulted in more fully engaged teachers and learners. The use of technology increased for all users, the availability of U-shaped seating arrangements and small group participation groups increased and students were satisfied with the new tools (chairs, movable tables, whiteboards, and accessibility to the internet). Other areas of satisfaction were the temperature, air quality, sightlines, colours, lighting and windows. It was noted the use of the overhead projectors remained consistent regardless of whether the flexible or inflexible configuration was used.

**Factors Inhibiting Change**

My study found two factors in literature that appear to account for very little momentum in colleges to change their inflexible classrooms. In spite of evidence from research to include the preceding case studies and report, there appears to be a gap in connecting best practice
teaching with change to innovative non-traditional classrooms. Also discovered, is scarcity of literature that studies current education innovations in pedagogy merged with appropriate space that is an essential part of supporting learner-centered education. The factors were found while searching for supportive literature in that there was difficulty in finding relevant studies that bridge the gap between current education innovation and the reliance on traditional general-use classrooms.

The observed gap.

Physical change to inflexible classrooms is advancing very slowly in spite of an escalation in the call for innovations in pedagogy. A point of view explored in this study was the possibility there might be a gap in understanding formed by factors containing misinformation infiltrating processes, procedures and policies. I noticed a gap in understating that appropriate flexible space and learner-centered teaching went hand-in-hand while teaching at a college where I worked for twelve years. Preliminary investigation into this occurrence included an analysis of the college Strategic Plan that demonstrated a gap in understanding existed between pedagogy and the appropriate use of supporting space. For example, at Humber College, one of the 24 colleges in Ontario, I noticed in its’ Strategic Plan it fostered and maintained a learner-centered institutional strategy (Embree, 2008). However, I observed all of the general-use classrooms were the hierarchic inflexible type not supportive of the student-centered model. I wanted to know why this gap existed between the Strategic Plan document and the campus and I wanted to know whether other institutions were the same. Further, I wanted to investigate what influenced administrators’ decisions when evidence based research and evidence based design as well as case studies indicate that flexible learner-centered general-use classrooms improve student success. The aforesaid was the genesis for the thesis question; what factors become priorities for
administrators of space when making decisions. Further, what creates the gap in understanding between pedagogy and supportive learner-centered teaching spaces. It was Holland that included the influence of the environment with that of the characteristics and behaviours of college students and thus his research formed a bridge and filled the gap to create a greater bond of understanding that environments do matter (Smart et al., 2006). I wanted to know why administrators were not changing inflexible space to flexible space.

**Limitations of literature.**

I have studied general-use classrooms for many years. They were the central topic of my master’s thesis (Teitelbaum, 2008) and they continue to be the focus of my research. As a researcher I have learned that literature focused on learner-centered general-use classrooms is limited, and this creates a barrier for researchers looking for reasons why they should align with current thinking about changes to classrooms. Additional limitations are;

1. Non-supportive literature disregarding best practice evidence concerning any kind of effective teaching spaces can be a barrier when searching for supportive information about classroom types that improve student success.

2. Research confined to silos of expertise can be a barrier when searching for supportive theories that cross areas of expertise.

3. Finding appropriate academic articles in this area that is not well researched limited the number of studies that could be reviewed.

My research focus, concerned decision making processes influencing administrators of colleges. I was seeking factors that became their priorities when choosing a classroom type. I discovered a small amount of literature within a narrow scope having to do with custodial concerns, the costs associated with repair of facilities and the need to prioritize funds in order to
keep college doors open. A very small amount of literature provided insights into historic accounts of physical classrooms. This literature was published in silos of professional expertise. These topics in the literature were very difficult to find, but nonetheless were factors that also came out in interviews. The difficulty in finding publications with information about classrooms lead me to question whether administrators cared about conducting and publishing research concerning this topic.

Literature was found with broader scope and a larger range of topics touching upon the historic reliance on the traditional classrooms, historic attempts to change to different types of classrooms and conversely attempts to maintain the status quo. The following is an analysis of the aforementioned topics.

**Limited research topics, narrow in scope.**

There are some publications confined to literature that is narrow in scope. An example of limited research is related to the relative cost of custodial services to clean flexible versus inflexible classrooms. The question of higher cleaning costs for flexible classrooms versus inflexible classrooms came about in preliminary discussions with potential administrators that might become interviewees in my study. I considered it a factor that could possibly influence administrators to select inflexible over flexible space and looked for literature discussing the topic. The search uncovered articles written by Swan, a college facilities manager who commented that the focus on college space is about leaking windows, big equipment and limited funding for projects (Swan, 2010.). From the administration’s point of view, cleaning flexible classrooms was more costly with no payback whereas cleaning inflexible classrooms was less expensive. However, Acker and Miller (2005) touch on the subject and noted that although some aspects of flexible space might cost more than inflexible space, there are other savings offsetting
these costs. They advocated for learner-centered education in flexible spaces because it benefits students, and pointed out that cheaper inflexible classroom space is a fragile argument when compared with arguments in favour of appropriate education space to suit users. Furthermore, their investigation into case studies demonstrates student success can be influenced positively by spaces designed to support multiple pedagogical models which support teachers’ instructional methods. Student success and current technology in learner-centered space is what these researchers tell us students’ say they want. Students want to be engaged while learning.

Statistical evidence indicated student satisfaction increased by 0.5 standard deviations by adapting teaching method to learning style. Dropouts in their study decreased from 20 percent to 12 percent while course satisfaction went up, “and the per student cost fell from $190 to $140” (Acker & Miller, 2005, p. 2). While the savings can be attributed to course redesign and new pedagogy it was the flexible space that played an essential role. The retention of inflexible classroom space appears to be due to its perceived cost effectiveness, and this perception appears to be an invalid argument. As Acker and Miller (2005) point out, there are cost trade-offs benefiting the institution but it is the students that benefit when space changes from inflexible to flexible. Ian Jukes and Ted McCain comment that institutions justify all forms of uninformed thinking based on a “pre-existing mind-set” because the excuse is both ingrained into the structure of the institution and is “the path of least resistance” (2007, p. 1). I question if limited research and knowledge about, for example custodial costs is an upper-most concern to administrators. I wonder whether they prioritize custodial costs above the support for students and question if what really matters to them is the retention of the row-and-column classroom that has existed for 4,000 years (Cole, 2005). I questioned whether access to research informs their decisions.
Historic publications within silos of expertise.

Published research about classrooms is not always easy to find due to its limited audience and narrow focus. Also, broadly speaking, literature concerned with space has historically been published in “silos” i.e. divided into theoretical categories. Pascarella and Terenzini (2005), whose educational focus concerns how college education affects students touches on how space influences learners. Caffarella (2002) whose research is focused on program planning models for adult learners also makes mention of how space affects adult learners. There are government-focused studies, including Cooke (2007) and fiscally-focused publications, including Lang (2008) that mention college space issues. Examples of literature that incorporate the previously mentioned topics and are more focused on college physical design as part of their research are relatively recent publications. Nonetheless they too remain in silos divided into theoretical categories. Examples include Painter et al. (2013) whose research concerns college planning. Government-sponsored publications such as articles written in the Government Publications Capacity Building Series (Robinson, 2012) and the Higher Education Quality Council of Ontario publication (Elliott & Colquhoun, 2012). There is yet another source of published literature rich in research content but focused on the sale of product: the published literature of furniture manufacturers such as 360 Magazine, by Steelcase.

The tradition of inflexible learning space.

If there is a tradition that can be found in published research literature then this tradition informs us that concern with the space that students use is a problematic. In the past, researchers, including eminent education theorists, were concerned with linear thinking, which suited the physicality of traditional classrooms (Ashworth et al., 2004). That is, the change from traditional environments to learner-centered classrooms was not an issue as didactic methods of teaching
have generally been the ‘norm’ in education (Cross, 1999). The site visits to the subject colleges for this study, as well as visits to other colleges, has confirmed this view. In other words, although recent literature is encouraging the change from traditional to learner-centered teaching practices, the physical entity that is the traditional classroom appears to remain the most common model for general-use classrooms in many Ontario Colleges.

**Government and funding.**

In the past, researchers concerned with government and fiscal issues were not concerned with a shift to learner-centered space as much as they were concerned with the quality of space given fiscal restraints (Clark, Morgan, Skolnik, & Trick, 2009; Lang, 2008). The relatively small amount of published research literature about classroom space supported the hypothesis that research into physical space, that was supportive of education, was not a priority. Published research literature supported the sustained use of traditional classrooms or was indifferent to space because its focus was about cost. Space was considered a Facilities Management matter, which was quite separate from any concerns about teaching. To that end, there are a limited number of studies whose focus is primarily on buildings. Frazier (1993) underscores journal articles dealing with the deterioration of school facilities, while others researchers focus their articles on the adaptive reuse of space (Haug & Ogurek, 2006).

**Gaps of knowledge.**

Silos of expertise commonly found in literature are consistent with departmental silos within colleges. Gaps in knowledge can explain why traditional general-use classrooms still occupy 34.5% of the teaching space within Ontario colleges (E.C.S., 2012). Gaps caused by silos continue in spite of encouragement to change. According to the Education Consulting Services Corporation (E.C.S.) report issued to Ontario colleges in 2007, college campuses should only
contain learner-centered classrooms and should not have any traditional classrooms. The report stated the following about college campuses.

They must create and maintain quality learning environments that reflect current academic delivery practices and the standards of industry, particularly for equipment and technology. This is best accomplished in facilities built or renovated to suit, not in facilities designed for the education and training practices of the previous three, four, or even five decades. ("When efficiency becomes a liability.," 2007).

Barriers to change appear to come from a failure to listen to what others are saying, or a failure to recognize multiple issues, or perhaps barriers are formed by a disconnection between Facilities Planning departments and Academic departments within Higher Education Institutions (HEIs). Researchers within isolated departments tend to stay within their spheres of expertise and this limits published research to groups whose ideas are isolated from one another. Thus, there is limited research into the physical connection with teaching space and facilities because of the limited interest that Facilities Planners have in connecting education space with campus operational space. Facilities Planners prefer to write articles associated with infrastructure and other concerns of their silo of expertise (Kennedy, 2004). The isolation of literature coupled with self-interest is a barrier to change, allowing Facilities Planning departments to remain unaware of educational changes.

Silos of expertise become entrenched, embedded, and patterns of operation become ingrained. Researchers, Jukes and McClain explain that when patterns are sustained for a long enough period they have a tendency to turn into irrational habits (2007). One such habit is the continued support of the traditional inflexible general-use classroom by college leadership who continue to maintain support for inflexible classrooms in spite of evidence proving otherwise.
“They [HEI leaders] are being asked to change the most fundamental parts of themselves – their core, unconscious assumed habits and values about education” (Jukes & McCain, 2007, p. 9). Jukes and McCain comment that, until something catastrophic occurs, barriers to change and thinking differently about general-use classrooms will remain firmly in place. Further, silos and gaps will continue in research thus pockets of traditional classrooms will remain as they have throughout history. It appears that researchers as well as administrators fail to see real change to classrooms is not happening leaving a gap between espoused theories and reality. For example an article published by Jukes and McCain (2003) included commentary from Dr. John Walsh, the provost of Guelph-Humber. The article discussed forward thinking in education as well as the need to move from inflexible to flexible classrooms. A media release dated August 31, 2005, described Dr. Walsh as forward-thinking and a “well-known teacher and consultant on higher education,” and yet all of the general-use classrooms within the Guelph-Humber building, constructed in 2004 were traditional. None were learner-centered (Bourk, 2005). The article by Jukes and McCain as well as the media release demonstrated silos of expertise within colleges that are responsible for gaps of knowledge and gaps of knowledge in HEIs can explain why traditional general-use classrooms still occupy teaching space (E.C.S., 2012) COFSI Report.

*Literature with a broader scope and range of topics.*

The following are additional barriers to learner-centred classrooms discovered in literature that have a greater range and scope as the literature available is from a larger body of knowledge and is more robust.

The literature describes three main barriers to change from traditional to learner-centered classrooms in Ontario. They are;

1. Published literature fostering the reliance on traditional educational spaces.
2. Leadership rationalization supporting the continuance of barriers to maintain the status quo.

3. Historic attempts to change classroom spaces that were not successful and did not meet expected goals.

*Habitual reliance on traditional space.*

The habitual reliance on traditional educational spaces and continuing to provide inflexible classrooms is the default setting. Published research cited by Dr. Scott-Webber (2012a) agrees with Jukes and McCain who say that the reliance on the traditional model as a default setting is a barrier to change because it is a “pre-existing mindset” (2007, p. 1).

My preliminary research included a site walk through local colleges. These visits revealed the wide use of traditional classrooms. I questioned whether the quantity of inflexible general-use classrooms was a policy of these institutions, and how widespread and consistent was the use of inflexible classrooms using row-and-column configuration. I observed that immovable desks and chairs continued to be configured as soldiers in a procession. This seating format was not changing. Institutions posting their facilities management manuals on-line provided a window into policy. Just like the colleges I toured, they tended to retain their traditional classrooms and lecture halls. Although not about a college in Ontario, the *Classroom Design Manual* from the University of Maryland (U of M), (Allen et al., 2004) describes the requirements for the development of traditional classrooms. The prescriptive document outlines the familiar scenario seen on campuses within Ontario Colleges. One of three classifications of space described in the manual is the “general-purpose classroom designed to house 75 or fewer students and [these classrooms] typically have at least 350 square feet and a minimum capacity of 20 students” (Allen et al., 2004, p. 1). Chapter three in the Maryland design manual, titled, *General Purpose*
*Classrooms* provides details pertaining to the rigid didactic orientation of prescriptive tools (desks, tables and other classroom equipment) for the development of traditional general-use classrooms (Allen et al., 2004). I have not found a public published procedural manual similar to that of the U of M from any Ontario college. Nevertheless, walk-throughs of Ontario colleges like those performed for this dissertation will confirm that traditional inflexible general-use classrooms are still the norm.

**Historical reliance on traditional space.**

In the past, the preferred method of educating students was based on a hierarchical model of space. Literature referred to the inflexible, general-use classroom as a traditional or didactic model. The writing of behaviourists and humanist theorists of the early 1900s supported hierarchical learning, and thus their teaching efforts were supported by the traditional physical space (Ashworth et al., 2004). In this model, the teacher was the principal educator and had command of the learners. Learning was by rote. Memorization and rote repetition were the preferred teaching methods used for the education of students. To support the hierarchic, didactic method of teaching, the physical state of the classroom had to be rigid, prescriptive and strict. Objects were regimented and ordered into a specific, as opposed to a random, pattern of placement. The position of command for the teacher was dependant on a rigid placement of objects. The primary focus was at the front of the classroom, where the delivery of the lesson given by the teacher took place, and the lesson was usually in the form of a lecture. Desks and chairs faced forward toward the teacher. All tools used by the teacher – the blackboard, the overhead projector, and any other instructional devices – were in the command of the teacher (Halstead, 2011).
**Historical exceptions to learner-centered spaces.**

Have there been attempts to change the inflexible general-use classroom standard? Historically, literature has emphasized educational topics supporting linear didactic practices, which, in turn, supported traditional classroom settings. An exception was the Bauhaus movement in Germany, whose teaching philosophy and use of open space reflected learner-centered education. The Bauhaus movement, however, was cut short by WWII and that form of learner-centered education did not appear again (Lackney, 1999). Another exception was the use of learner-centered Harkness Teaching at the Exeter Academy in New Hampshire. Unfortunately the movement never took root (Smith & Foley, 2009). Historical attempts to change from traditional space to learner-centered classrooms demonstrated traditional classrooms are ingrained within our institutions. Jukes and McCain explain, “That’s the way we’ve always done it,” a rationalization that is almost impossible to alter. They further explain that the reliance on this default setting is almost insanity (2007, p. 10). That said, published literature informs us this “insane” rationale is most certainly a barrier to changing from traditional inflexible standard classrooms to flexible learner-centered classrooms.

**Maintaining the status quo and enabling traditional space.**

The research of Lang (2005, 2008) indicates shrinking funding is a conceivable barrier to flexible learner-centred classrooms. The text by Clark et al., (2009) confirms that fiscal restraint has made its mark on colleges. The article by Jukes and McCain (2007) argues that the belief in a fact can be more powerful than reality. I agree with Dr. Scott-Webber that the assumption that change will increase costs, maintains the default choice of the traditional inflexible general-use classroom (Scott-Webber, 2012a).
Leaders of Ontario’s educational institutions declared barriers to change from traditional to learner-centered classrooms are, first, opportunity and second, funding. This is problematic in the context of a bigger picture concerning the provision of college education as they should not be barriers to improving the modes of teaching students. As for funding, the rationale is unfounded, as material costs are variable and are dependent upon the tools selected (Acker & Miller, 2005). While there are only a handful of examples of changes from inflexible to flexible classrooms, there are numerous reports insisting these changes to facilities are necessary. An example is the Education Consulting Service report ("When efficiency becomes a liability.," 2007). This report addresses the need for changes as well as the availability of funds, including the infusion of funding for facilities through the Ontario Government’s SuperBuild program. This program allocates funding per student but also furnishes colleges with the opportunity to upgrade spaces (Eves & Lindsay, 2000). Government legislation through SuperBuild continues as an active form of funding today. More about SuperBuild funding is discussed in later chapters. Most importantly, the rationale that the cost to provide a traditional general-use classroom is less than that of providing a learner-centered classroom is uninformed (Scott-Webber, 2012a). Thus, the list of barriers used by leadership is entirely, as researchers Jukes and McCain (2003) comment, a form of insanity.

**Maintaining the status quo by disabling change.**

There are numerous additional barriers in the way of changing traditional classrooms to leader-centered classrooms. However I consider three major barriers of the greatest importance to be:

- Minimal administrative participation in research and publication at the college level allowing the continuance of barriers;
• Historic exceptions and experiments that have tried to change space from teacher-centered to learner-centered environments seen as failures; and

• Published literature and the reliance on a historic traditional space.

Pro-change strategies include the encouragement of research adding to the body of knowledge about the education of students and, by so doing, add publications that break down silos and support learner-centered space throughout our institutions – not just within classrooms.

The movement toward publications linking information from a variety of areas has already begun but it must be encouraged. Miller is concerned with “the future of post-secondary education, from wired classroom to the birth of the computer tutor. It’s different than you think” (2012, p. 1). In their study, Rullman and van den Keiboom (2012) discuss education theories, technology and emphasize the importance of space.

These publications are mostly the contribution of university professors who are encouraged to conduct and publish research. Research is not as vigorously supported in Ontario colleges. Programs designed to encourage college professors to publish would infuse the body of literature with much-needed published research. Adding to the body of literature fostering learner-centered classrooms would limit the influence of factors currently supporting the use of inflexible general-use classrooms.

**Changing the status quo by enabling non-traditional space.**

The following are suggestions that literature identifies will enable change. They are cost, leadership and considering the importance of learner-centered space.

*Cost.*

The unproven barrier concerning cost and implementation, could be removed through research and development of programs aimed at strategies that change traditional inflexible
general-use classrooms into flexible learner-centered environments. This barrier is the hardest to break as it is tied to irrational thinking (Jukes & McCain, 2003, 2007). That said, with the possibility of future purchases, furniture dealerships would be willing to provide trial classrooms demonstrating that learner-centered classrooms work from both a fiscal and educational perspective.

Leadership.

I noticed that instruction modules about appropriate education space were not included in the curriculum of either my masters or my doctoral thesis. For example, there were discussion about the theories of Pascarella and Terenzini (2005) whose research concerns the engagement of students within education environments but the exploration did not include Holland’s thoughts about student engagement within physical space. It was Holland who added the need for engagement of students which is inclusive of the physical environment (Smart et al., 2006). Encouragement of leadership in this area requires an awareness of the importance of space, the breakdown of barriers, the removal of silos and heightened awareness of the importance of supportive space. These topics should be included within education programs that train future educators and administrators. This will create leadership by developing knowledge of the issue.

Considering the importance of learner-centered space.

Learner-centered space is important to our students who expect to leave our HEIs ready to work. Acker & Miller inform us that students and teachers prefer active, visual, collaborative learning spaces (2005), and new work environments should reflect the current use of collaborative open offices (Lasker, 2012). Changed work and educational environments are not a trend or a fad, and they are not going away. To prepare our students for careers in industries that are collaborative and open, HEIs must ensure all of our educational environments support the
experience of working spaces that are open so students can go forward into work environments with confidence.

Summary of Chapter Two

What I learned from the literature is that the type of learning space matters to teachers and students. Inflexible classroom models may have been useful in their time but best practice and evidence suggests student engagement and success is improved by flexible educational space.

Literature and studies indicate that significant environmental change to the hierarchic general-use classroom within college campuses in Ontario will not happen unless there is a meaningful connection made with the type of space that positively supports its users as they work with new pedagogy models. The responsibility for the change resides with the leaders in charge of the development of campus space. Unless leaders come forward to identify the obstacles in the way of change and break down the silos that prevent the free exchange of ideas, the environment of classic hierarchic classroom will not change and the lack of appropriate environmental tools needed to support student-centered learning will continue to stifle teachers, who will not perform to their fullest potential. Finally, and most profoundly, students will continue to underperform simply because essential education tools do not support learning within the general-use classroom.

Chapter three provides a detailed description of the research methodology employed in this study for the purpose of collecting qualitative data examining this topic through methodology specific to exploratory, descriptive case studies of three colleges. The contents include questions posed to sixteen interviewees, site and document selection as well as
assumptions, concerns and issues, philosophical concerns, limitations of methodology and ethical considerations.
Chapter 3: Methodology

The motivation for my study was the need to understand the rationale for the continued use of inflexible and flexible classrooms on college campuses. The purpose of this study was to explore why, in spite of best practice literature, there is little evidence of change to the use of flexible classrooms that could easily accommodate educators who want to use multiple learner-centered teaching models which the literature review in chapter two indicated would benefit students. The question “why” lead to the question “what” in my seeking the factors that influenced administrative decisions on this issue.

This chapter presents the research design and methodology, including the site and participant selection criteria used for this study. It describes the data collection, the recording and analysis processes, methodological assumptions, limitations and ethical considerations.

Research Design

Factors effecting decisions about the apparent reluctance from moving from a traditional design to a flexible classroom design were studied. Research indicated that appropriate classroom space was a concern for educating students deserving of supportive physical tools and appropriate pedagogy synchronized through learning environments that are organized by the administrators of our colleges (Lackney & Jacobs, 2002; Smart, Feldman & Corinna, 2006; Bickford & Wright, 2006). The theoretical model described in chapter two was based on classrooms designed to work with multiple flexible pedagogies. It questioned why the current inflexible classroom remains in use for less flexible teacher-centered methods of education. Flexible teaching methods that are learner-centered and flexible space work in concert to improve student success. They engage students and capitalize on the time spent in the classroom (Mandarino, 2010). This study and its design grew from my teaching experiences that took place
almost exclusively in inflexible row-and-column classrooms where I found it difficult to teach using learner-centered teaching methods. The research was not designed to be like other studies that I found on this topic in that the perspective of this study was not to make change and test the outcome from the student and faculty point of view, but to ask relevant decision-makers in the colleges why change was not actively happening in their institutions. In this study I posed questions to administrators at participating colleges and asked them why the development of teaching space, i.e., the classroom, was not evidence based. It was my experience and my worldview that drove the study. My aim was to design a study that would contribute to the growing body of knowledge concerning changes to classroom environments and would support flexible learner-centered space that would help students who deserved the most advantageous physical environments for teaching and learning considered to be basic to their success.

Generalization to other Higher Education Institutions was not the goal of this qualitative study as inquiry was limited to three Ontario Colleges. The limitations of this research design included the purposeful sampling of three cases, the data collection matrix designed to capture information from sixteen interviewees and the time period in which the information was captured. The goal of this study and its research design was to gain a deeper understanding about the experiences of participants and their view of the classroom which Creswell refers to as the phenomenon (2009).

There was one overarching purpose that focused this research study. It was based on the scholarly research of others. This purpose was to discover why the use of inflexible general-use classroom space continues to be predominant in educational institutions, rather than flexible classrooms that would support educators who want to use multiple learner-centered teaching practices, which the literature review indicated would benefit student learning. There were sub-
purposes that framed the three research questions that in turn guided scripted questions posed to participants, guided analysis of transcribed data, Strategic Plans and site visits.

Table 1, below identifies the overarching purpose and sub-purposes of this study as they relate to the research questions that drove this study.

Table 1

*Purpose of this study*

<table>
<thead>
<tr>
<th>Primary Purpose of this study</th>
<th>References that grounded the basis for this purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>To discover why the use of inflexible general-use classroom space continues to be predominant in educational institutions, rather than flexible classrooms that would enable educators who want to use multiple learner-centered teaching practices (which the literature review indicated would benefit student learning) is not happening.</td>
<td>Bickford &amp; Wright, 2006; Lackney &amp; Jacobs, 2002; Painter et al. 2013, and Felix &amp; Brown, 2011</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub-purposes</th>
<th>Research Question</th>
<th>References that grounded the basis for this purpose</th>
</tr>
</thead>
</table>
| To discover the importance of the classroom:  
- found in the history of their development  
- discovered within the traditional use of general-use classrooms  
- explored by examining their importance to their respective institutions | RQ #1  
What is the importance of the general-use classroom space? | Clark et al., 2009; Jukes & McCain, 2006 |
| To explore whether entropy, because of passage of time, and upgrades, challenged campus infrastructure. | RQ #2  
What are the policies, processes and procedures considered by administrators when determining a classroom model? | Gee, 2006; Graetz, 2006, and Swan, 2010 |
| To discover factors that become priorities in the decision-making process that influence administrators of space to choose one type of general-use classroom over another | RQ3  
What are the other factors influencing administrators when determining the general-classroom space type? | Bickford & Wright, 2006, Lackney & Jacobs, 2002 |

My hope is that the findings will provide decision-makers in educational institutions a deeper understanding of the importance of aligning teaching space with best practices and use of
flexible classroom space as identified in scholarly research and literature (Bickford & Wright, 2006, Lackney & Jacobs, 2002). My hope is that the implications for best practices and further research that I present in Chapter 5 based on the findings of this study will create a momentum for change that will benefit student learning (McFall & Beacham, 2006).

**Strengths and limitations.**

There were research strengths and limitations in the design of this exploratory descriptive case study. I incorporated the strengths into the design but acknowledged the limitations and considered their usefulness for future studies. Two characterises were appropriate for the research design. The first characteristic focused my research by asking, why research a question that had been researched very little by others? Painter (2013) pointed out that qualitative studies are often taken on because of the lack of theory developed by other studies concerning the phenomenon. I considered my study could forge a path for others. However, the lack of other research, without theory to build from was problematic. Therefore this researcher thought that the study design should be approached from a narrow, focused perspective, to prevent analysis of tangential distracting ideas. Additionally, participants should be contained to a small focus group. These design measures would concentrate my attention on the phenomenon, would allow me to gain a deeper understanding and would give me grounding for further research possibilities.

The second characteristic was a strength in that this study used the *inductive* process strategy described by Merriam (2002) who commented that a basic descriptive qualitative study exemplifies an array of characteristics of qualitative research. Some aspects were incorporated into the methodology of this qualitative exploratory descriptive case study to include a combination of words and pictures to obtain data. Ethnology was utilized to obtain data from site
visits and assess interviewees in situ. As a researcher I was interested in understanding how participants made meaning of a phenomenon and I tailored the research design to encapsulate the words and experiences of its participants by asking questions. The meaning was mediated through me as the researcher in that I was an instrument and the outcome of analysis was descriptive. The inductive process extrapolated patterns and themes discussed in literature that cut across data. For example the relationship between colleges and government cut across themes of funding, governance and accountability as well as alienation that lead to an understanding about how priorities were formed into factors influencing the decisions about classrooms. The inductive process that was a part of this research design was the outcome of a characteristic of qualitative studies using pictorial guides in face-to-face interviews. The study was designed to produce richly descriptive words rather than quantifiable numbers (Merriam, 2002, p. 6). Studies of this kind appealed to me as my worldview was, and remains that of an interior designer whose tradition and processes essentially utilized these forms of research methodology. Early into developing this study I considered using the strategies of quantitative and mixed method data collection but neither proved useful for my needs. I considered the limited quantity of research to build from and had difficulty framing suitable quantitative questions without grounding from other studies. Further, I thought quantitative methodology could not create the relationship that I needed with my participants and thus would not satisfy my understanding of why the relationships existed as well as how they worked for or against classroom change. I discovered I was looking for deep descriptive words that only face-to-face interviews could provide. The decision to approach the methodology as I did for this study was successful for two reasons. The first was rich descriptive data as an outcome of interviews. The second was that others may adopt many of the methods used in this study for their research studies.
A limitation of this study methodology was the confinement to a small group of participants within a limited time period and geographical area (Creswell, 1998). While it did discover factors that influenced the continued use of the general-use classroom, it was accomplished only as a camera captures a snapshot. Nonetheless, this research design limitation could become strength for other studies. Other researchers, who wish to expand on the foundation this study has provided, could try the methods adapted for this research. The design left room for future research that might utilize mixed method or quantitative research methods. Other researchers might incorporate their own line of questioning, seeking factors that influenced administrators concerning priorities that prevented other changes in colleges.

**Shaping the research design.**

The research model (Figure 18) describes the flow of the sequential explanatory method of research design used for this study. The model was similar to that developed by Ivankova (2002). The diagram explains the inquiry process of understanding designed and followed by this qualitative research study. This was a study conducted with interviewees in their natural setting. Data were collected from those immersed in the everyday life of their setting in which the study was framed. Through the extraction of data I was able to appreciate the complexities of my interviewees’ lives and to frame holistic pictures. The views of interviewees were analysed as singular entities within their contextual backgrounds and views were cross-referenced with each other.
Figure 18. Sequential method design

Hypothesis and design.

This was an exploratory, descriptive case study of three colleges with a hypothesis that was suggestive rather than tested (Merriam, 2002). The design of this study considered the hypothesis to be tested in that it considered that inflexible general-use classrooms continued on college campuses because administrators who worked with campus space had reasons for maintaining this classroom version. The study was designed to discover why inflexible classrooms continued by asking administrators about their governance, their biases and pressures that influenced their decision-making processes.

Source: Adapted from Ivankova (2002)

Figure 18 describes the phases, the procedures and the end product that were the process of discovery within this research study.
**Perspective and design.**

A characteristic of the design of this study was its perspective driven by the scarcity of research to guide predictions and the hypothesis. As noted in chapter two, there was research that explored classroom change that had pre-tested and post tested classroom design but no research was found by this researcher that discussed why change was not happening. This study was designed to test assumptions about classroom types by conducting a site review of three college campuses and their Strategic Plans. Classified in terms of the purpose, this was also an exploratory research study utilizing methodology structured to discover two characteristics described in the research question. First, what were the factors and what were the priorities. Second, how and when did they influence administrative decisions (Creswell, 1998). The hypothesis derived from the theory was, in spite of best practice research inflexible general-use classrooms continued. This served to guide the process of discovery and provided a list of questions that needed to be asked.

**The strategic intent.**

This study was designed to examine why the traditional row-and-column classroom had not changed in 4,000 years (Cole, 2005, 2008). The strategic intent of discovery was not to investigate and then advocate for change for the sake of change. It was to examine *why* change had not occurred despite, as described in chapter two, reasons for change including best practices fostering student success, innovations in technology and neuroscience had provided support for change to facilitate student transition into flexible work environments.

The design of this study emerged in a very natural way. It evolved to become a study whose design could only be an exploratory descriptive case study. As a researcher I undertook a systematic approach to the study of this phenomenon and to that end looked for patterns that
could be identified as factors within themes found in literature and theories emerging from data. Thus, as data became available I was able to identify patterns and in the analysis phase I was able to pick out categories that developed into patterns that soon reached saturation. “The results of this process of data collection and analysis is a theory, a substantive-level theory, written by the researchers close to a specific problem or population of people (Creswell, 1998, p.57).” As a researcher I recognized the outcome of this study would be developed from emerging theories with specific components adhering to the central phenomenon describing strategies, conditions and context that were categorise of information.

I endeavoured to achieve an overall tone of rigor and scientific credibility that was characteristic of thesis development. I began with a phenomenon and systematically progressed to generate a substantive theory. I continued with structured data collection methods involving interviews, site visits and document collection. I incorporated the use of ordered procedures for analyzing and developing the theory such as open and axial coding that represented relationships among categories and explained them with visual models.

**Site, Participant and Document Selection**

The determination of site, participants and documents were deliberate in that their selection emerged from my careful consideration of evidence found in the literature, my own experience of ten years as an educator, and what I know as a corporate interior designer with thirty years of professional employment.

The selection of the most appropriate colleges was the first consideration. Three colleges emerged from the evaluation process. What followed was the selection of interviewees. The first consideration was to select interviewees who had an internal (emic) view, which was followed by the selection of those who could present an external (etic) view of the problem. To provide a
triangulated perspective I chose to compare interviewee statements with documents and site reviews of the subject campuses.

**Triangulation.**

Creswell identified five traditions of qualitative research (1998). One was case study development. A tool in this tradition of investigation was triangulation used to guard against the accusation that a study's findings were developed from a single method, source, or investigator's biases. The function of triangulation was to investigate findings from different views (Denzin, 1978). Data triangulation was the method selected for this research. The purpose of this method was to check the consistency of different data sources by comparing and cross-checking the consistency of information obtained at different times by different means.

**Purposeful sampling.**

Merriam comments, “It is important to select a sample from which the most can be learned and this is called a purposive or purposeful sample” (2002, p. 12). The purposeful selection of sites, participants, and documents used in this study was based on criteria of benchmarks that I established. College selection based on controlled benchmarks was an example of the informed method that I deployed. This method of purposeful sampling was described by Creswell (1998, p. 178). Given the scholarly guidance of Creswell and Merriam, I proceeded with the thoughtful but controlled selection of participants and related documents that allowed me to gather substantial data that subsequently provided rich information.

**Site Selection.**

The aim of the study was to sample colleges located in Ontario and then to find colleges that were as similar as possible. The ideal method of selecting colleges with the greatest similarities was the process of elimination using benchmarking (Creswell, 2009, p. 178). Given
the nature of exploratory descriptive case study design I purposefully chose colleges demonstrating important similar characteristics. A further rationale for selecting similar institutions was that to my knowledge, this was the first study of Ontario colleges using this material. To obtain balanced but vigorous results, consistent data were desired for comparative purposes. More diverse colleges with demonstrated differences could skew the findings. Colleges with greater diversity could be selected for research in the future.

At the time of this study there were 24 colleges in Ontario; 22 of these were English speaking colleges and two were Francophone. All 22 of the English speaking colleges were considered initially but the number was quickly reduced to eleven. The assessment/selection criteria looked for a cluster of colleges that were close to the same central urban location. This meant the colleges would more likely draw their population from the same group of students and teachers. This was important as consistent pools of students and teachers were less likely to tailor the general-use classroom to suit their unique needs. I based this method of selection on my experience as an interior designer and I applied a form of observed logic to the personalization of space. The strategy was based on the observation of how corporate clients customized their meeting rooms. Meeting rooms benchmarked for general office purposes were generic, purposed for anyone. Meeting rooms identified for a specific cluster took on the identity of that group. I observed this in colleges as well in that spaces identified for the overall college remained generic but spaces owned by programs were tailored for that group.

The assessment of colleges with similar criteria was made by reviewing the publicly accessible information found on college websites. Twelve colleges that did not meet the initial criteria were removed from the list of twenty-four possible candidates. These colleges were specialized in some way.
I continued with the elimination process noting the colleges in the study had to have a large number of clustered buildings on a centralized campus and the buildings had to support multiple programs (Table 2). All buildings on campus had to be located within a defined geographic perimeter. The rationale was that multiple buildings confined to a defined campus would have many diverse programs that all needed generic space. The generic space I was interested in was the general-use classroom. Thus, large stand-alone geographically confined urban campuses with a cluster of many buildings were likely to contain generic general-use classrooms, whereas satellite campuses consisting of one or two buildings that were not confined to a single geographic campus were frequently dedicated to individual specialty programs which would distort their general-use classrooms through customization. For example, a campus for a flight program would tailor their classrooms for exclusive use by their students because the campus was not open to other programs.

An analysis of the colleges’ publicly available Strategic Plans added another dimension to the college selection criteria. Similarities in format, in focus and approach to learning indicated in the colleges’ Strategic Plans were factors that contributed to the selection of the study colleges. Of the five colleges that were possible subjects based on other selection criteria, two had very different Strategic Plans. The plans were not designed for the college as a whole but were customized for each program. Two colleges were therefore eliminated from the study because of their different approaches to teaching and learning as evident in their Strategic Plans.

An additional consideration was that the colleges in this study had to demonstrate their governance structure was similar. The type of governance structure was narrowed to Colleges of Applied Arts and Technology (CAAT’s). As well, the colleges included in this study had to have Strategic Plans that were viable for a period of five years.
This process of critical examination of specific characteristics resulted in the identification of three similar colleges acceptable as subjects for this study. They were all within the same general geographic area and all drew students from the same large urban population. Additionally, their Strategic Plans denoted they were similar in learning philosophy and political structure.

The three colleges identified were similar and met the selection criteria. To provide anonymity they were coded Colleges Red, Blue and Green. They are highlighted within the grey bands seen in Table 2.

To further validate my selection I compared my findings with the COFSI Report (E.C.S., 2012) that confirmed another similarity in that the three subject colleges had the largest number of students in Ontario. I then located the colleges on a map of Ontario, which confirmed locations of the subject colleges were clustered around the same large, central pool of students. I investigated the age of the main campuses and considered whether the college campuses had a cluster of buildings that ranged in age from the 1960’s and beyond. This was achieved by looking at photos of the campuses that confirmed the three colleges selected indeed had a range of buildings of varying age. I explored whether the main campuses that were the focus of this study were surrounded and defined by a perimeter of residential housing or commercial buildings. This was important as self-contained campuses were more likely to be used by a diverse population of students and for all programs and therefore it would be less likely that general-use classrooms were customized to suit one user. The assessment was conducted by looking up historic information found on college websites.
Table 2

College selection

<table>
<thead>
<tr>
<th>Colleges Code Names by colour</th>
<th>Location: Urban - near large city</th>
<th>Location: Close proximity to more than three colleges</th>
<th>Campus Size: L=large, M=medium, S=small</th>
<th>Geography: has one large centralized campus with defined perimeter plus satellite campuses</th>
<th>Diversity of programs: has many programs using many campus buildings</th>
<th>Admin.: governance consistent with other colleges</th>
<th>Strategic Plans: similar to other colleges</th>
<th>Strategic Plan of 5 years</th>
<th>Strategic Plan, more or less than 5 years</th>
<th>Does not conform</th>
<th>Conforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>U</td>
<td>no</td>
<td>L</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>Conforms</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange</td>
<td>U</td>
<td>yes</td>
<td>L</td>
<td>no</td>
<td>no</td>
<td>Does not conform</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purple</td>
<td>R</td>
<td>no</td>
<td>L</td>
<td>yes</td>
<td>yes</td>
<td>Conforms</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>U</td>
<td>yes</td>
<td>L</td>
<td>no</td>
<td>no</td>
<td>Does not conform</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>U</td>
<td>yes</td>
<td>L</td>
<td>yes</td>
<td>yes</td>
<td>Conforms</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow</td>
<td>R</td>
<td>no</td>
<td>L</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>Does not conform</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue</td>
<td>U</td>
<td>yes</td>
<td>L</td>
<td>yes</td>
<td>yes</td>
<td>Conforms</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>U</td>
<td>yes</td>
<td>L</td>
<td>yes</td>
<td>yes</td>
<td>Conforms</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pink</td>
<td>R</td>
<td>no</td>
<td>M</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>Does not conform</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magenta</td>
<td>R</td>
<td>no</td>
<td>M</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>Does not conform</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey</td>
<td>R</td>
<td>no</td>
<td>M</td>
<td>yes</td>
<td>yes</td>
<td>Conforms</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teal</td>
<td>R</td>
<td>no</td>
<td>M</td>
<td>yes</td>
<td>yes</td>
<td>Conforms</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

College selection table
Existing space inventory used by the colleges, from COFSI Report for A1 Classrooms (E.C.S., 2012).

Legend: **Campus size
L=college square footage range of approximately 260,000 at upper range and 126,000 at lower range
M= college square footage range of approximately 126,000 at upper range to 100,000 at lower range
S = college square footage range of approximately 100,000 or less

The investigation conducted indicated the three colleges selected were a match.

Participant Selection.

When conducting an exploratory descriptive case study the number of participants is important, as is who is considered suitable for the study. I interviewed sixteen participants. Eleven who represented the emic view and five who provided the etic view as identified in Table 3. In addition I consulted five external experts who were consultants to the study colleges in order to assist in the interpretation of the data provided by the 16 study participants.
The identification codes assigned to the colleges and the interviewees were CR for College Red, CB for College Blue and CG for College Green. Each interviewee was given a code, for example, the Vice President Academic was assigned the code number 1 and the Facilities Planner was assigned the code number 2 and linked to their college by colour code. The codes assigned to Directors in Colleges Red and Blue were D1 and D2. Table 3 depicts the abbreviations used.

In the early stages of methodology development I was concerned the number of interviewees was not sufficient to yield meaningful results. Creswell suggested 20 to 30 interviewees were needed for research (1998). However, Guest, Bunce and Johnson (2006) observed that saturation was likely to occur at the sixth interview. That is, major themes would become apparent within six interviews with finer themes showing up in subsequent interviews. I incorporated this strategy into my methodology and found some saturation occurred at interview session nine, and again at interview session eleven. For this reason it was reasonable to assume the 16 interviews provided sufficient data needed for this exploratory, descriptive case study of three colleges.

I selected college administrators rather than students or faculty. Students and faculty can influence space design but they do not determine space types and as such could not respond to questions seeking factors that prioritize teaching space in institutional decision-making. I found in an earlier study that, although students, faculty and others might influence decisions one way or the other, the outcome was determined at the administrative level (Teitelbaum, 2008).
Table 3

Coding of colleges, participants and consultants

<table>
<thead>
<tr>
<th>Coding of Colleges, Participants and Consultants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
</tr>
<tr>
<td>CR</td>
</tr>
<tr>
<td>CB</td>
</tr>
<tr>
<td>CG</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Key Informants (emic)</td>
</tr>
<tr>
<td>Code</td>
</tr>
<tr>
<td>R1</td>
</tr>
<tr>
<td>R2</td>
</tr>
<tr>
<td>R3</td>
</tr>
<tr>
<td>B1</td>
</tr>
<tr>
<td>B2</td>
</tr>
<tr>
<td>B3</td>
</tr>
<tr>
<td>G1</td>
</tr>
<tr>
<td>G2</td>
</tr>
<tr>
<td>G3</td>
</tr>
<tr>
<td>D1</td>
</tr>
<tr>
<td>D2</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>External Experts (etic)</td>
</tr>
<tr>
<td>Gov1</td>
</tr>
<tr>
<td>Gov2</td>
</tr>
<tr>
<td>EDS</td>
</tr>
<tr>
<td>DSGN</td>
</tr>
<tr>
<td>DEAL</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Consultants</td>
</tr>
<tr>
<td>Custodial Consultant</td>
</tr>
<tr>
<td>Technology Consultant</td>
</tr>
<tr>
<td>Government Consultant</td>
</tr>
<tr>
<td>College Space Consultant</td>
</tr>
<tr>
<td>Scheduling Consultant</td>
</tr>
</tbody>
</table>

Note: This table denotes the codes used to represent the colleges (CR; CB; CG) and the key interviewees in colleges (R1;R2;R3;B1;B2;B3;G1;G2;G3; D1; D2), the external experts (Gov1; Gov2; EDS; DSGN; DEAL) and consultants.

The selection of specific participants came from two sources. First, college job descriptions that were posted by Human Resources Departments and second, what I learned while pilot testing questions used in this study. Participants selected were key informants employed at the administrative level of governance at the study colleges, or external experts (n=5) who had direct
knowledge of the three study colleges. Eleven of the interviewees were administrators from the three subject colleges giving their inside (emic) perspective.

Five of the interviewees were administrators who were experts external to the institutions but were directly involved with the work of the study colleges. Two were government administrators who gave valuable insights from their perspectives within the Ontario government, concerning how policies, processes and procedures influenced the development of campus space. One external expert provided valuable insight from a college education perspective concerning how college administration and government influenced campus space. One external expert was a designer and another worked for a furniture manufacturing company that provided tools (chairs, tables, and etcetera) to the colleges. This group of five external experts provided their outside (etic) perspectives.

**Recruitment of participants.**

Two participant groups were recruited for this study. The first consisted of eleven key informants from within the study colleges, and the second group of the five were external experts who had direct knowledge of these colleges. All provided the data that were the collected in face-to-face interviews. All participants invited, consented to participate in this study.

In addition, I consulted five external consultants through personal communications when I needed to interpret the data gleaned in the 16 participant interviews.

The methods of recruitment of participants for this study followed the Freedom of Information and Protection of Privacy Act (FIPPA) that is a Provincial Act enforced at Ontario Universities since June 10, 2006. This study adhered to the privacy code principles identified (Toronto, 2012).
Key informant and external expert - selection criteria and recruitment.

The participants for this study were drawn from sources that were not exclusive to one another. Some participants I met while conducting early interviews for this study. Some had job titles I knew directly involved the design of classrooms and some had job titles that I knew influenced classroom design. While conducting interviews, participants gave me the names of two additional people who they said should be included into the study. The reason for their inclusion was that these people had taken on job responsibilities that were once handled by one administrator but at the time of this study were shared by two. To that end I added two Directors to this study. The selection of finding who should be interviewed (key informants and external experts) was based on the participant’s influence on classroom types.

The method of finding contact information about the participants was by accessing job titles, phone numbers, addresses and other details pertinent to this study via information found on public websites. I contacted the potential interviewees by phone and/or by posted letter. Contact with the college administrators and external experts for post interview script review was by email only if the participants gave their approval during the interview session. Otherwise all post interview transcript reviews were sent to the participants by posted letter. For the return of hard copy communication interviewees were provided with a postage paid, preaddressed envelope for mail service. When consent was given for direct email communication it was recorded and was included in the transcript. All communication, transcription of interviews, email, letters and phone calls were conducted by myself.

Consultants - recruitment.

There were five consultants who were not participants in this study with whom I communicated in personal communications by email or by phone. These five had expertise in the
following areas: custodial issues, technology, government, space, and scheduling. My personal communications with these five consultants allowed me to interpret the key informants’ input in a broader context. I contacted these knowledgeable people in order to test facts that emerged from face-to-face interviews. For example, a fact that required clarification from a person with expertise concerned the cost of cleaning an inflexible classroom compared with that of cleaning a flexible classroom. The phone number of this company that was associated with the colleges was available publicly by searching the Internet. I placed the telephone call, gave the receptionist the reason for my call and was transferred to the manager in charge of cleaning colleges. I explained who I was the reason for my call and asked if I could use the response to the question in my study. Had I been refused the call would have ended. However, the person contacted was an expert within this field and responded to my questions without hesitation. The investigation of topics such as cleaning costs was relatively superficial in that no in-depth complex research was conducted to ascertain answers. I maintained a written record of the conversations that occurred between the consultants and me. The information was included in my discussion of the study findings. I recorded the information discussed and sent an electronic transcript to the consultants who then reviewed the conversation for accuracy and gave his/her permission to use the information in my study.

**Document selection.**

This study included the assessment of the Strategic Plan documents from each of the three subject colleges. These were posted on their respective publicly accessible websites. Senior management developed the documents used for this study. Their purpose was to define the institution’s mission, vision and values and to convey the institutions goals and objectives to the public. Researchers point to an oddity concerning Strategic Plans in that they tend to make a
distinction between a college’s strategic decision-making and operational decision-making (Sheridan, 1998). This study explored that oddity and questioned to what extent the strategic decisions spelled out in the Strategic Plan documents compared with the brick and mortar experience on campus.

This study included the triangulation of data that would test three areas inherent in its research. They were first, the goals of the Vice President Academic of the subject colleges, second, the goals expressed in the Strategic Plans of the subject colleges, and third, this study examined the number of flexible or inflexible classrooms discovered on campus. The outcome of this method of exploration would identify to what extent the goals of the Vice President Academic were aligned with those of the Strategic Plans, if the Strategic Plans were learner centered or teacher centered, and whether the campus facilities reflected those philosophies.

**Instrumentation.**

There were two data collection instruments used at interview sessions; the visual aid and the interview guides. The visual aid was an instrument used as a picture prompt that described the two classroom types so that there could be no other spaces considered but those depicted in the visual aid (Figure 2, page 14). The visual aid was handed to all interviewees at the beginning of the sessions. The explanation about the two classroom types depicted in this aid was included in the interview guides and I explained its purpose to all interviewees. The visual aid became an important instrument reinforcing the rationale for this study in that I understood that not all people saw space as I did and that they needed a verbal as well as pictorial explanation. Both the interviewees and this interviewer referenced the visual aid whenever clarification was needed.

The interview guides was an instrument with scripted questions that were used in face-to-face interviews (Appendices, E, F and G). These were designed for key informants at the subject
colleges. They were designed for the external experts who were the education specialist and the government interviewees. They were designed for the Designer and interviewee from the Manufacturer/Dealer. All questions originated from part two of the matrix (Appendix A). The questions used in the interview guides were the results of refinements made through pilot tests. The questions posed to interviewees were designed to gather their responses in two ways. The first were questions seeking a broad overview perspective of the phenomenon. The second were questions with a narrow focus that probed administrators of campus space for direct answers. The instrument questions sought to discover factors that allow the continuance of the inflexible general-use classroom when best practices inform us that inflexible classrooms should be replaced with flexible classrooms (Gay, Mills, & Airasian, 2006; CCCSE, 2010).

At the beginning of all interviews I introduced the study and gave an overview describing the purpose of the visit. This overview was followed by the first question that asked all interviewees which one of the two classroom types they would prefer to teach in. Early development of this study at the time of pre testing indicated this question worked well as an introduction as it set the stage for questions that followed. This question was followed by a quotation from the Education Consulting Services Report dated February 2007. The purpose of this insert was to inform interviewees and frame their focus on the questions to follow. I then read a series of scripted questions in sequence. The interviews ended with an open question posed; *Do you have any additional comments that you wish to add?* This question was positioned to allow interviewees the opportunity to add, subtract or rethink what they had said in the interview. The interview closed with an explanation given to the interviewees that follow-up after the interview would be hard copy transcripts for their review and approval.
I developed thirty-four questions based on the phenomenon that inflexible general-use classrooms were not changing to flexible classrooms in spite of best practices in education. I was seeking factors that were priorities in the decision-making process of administrators who were the ones that determined space at colleges. Three interview guides were used, as there were three participant groups each with a special interest. One was the in house college group, the second was the government/special education group and the third was the designer /manufacture dealer group. The first interview guide (Appendix E) was used to interview college participants and it contained questions one through ten. The second guide (Appendix F) was used to interview the Government participants and the Education Specialist. All were asked questions one through ten. However, the Education Specialist was also asked questions eleven through twenty. The Government participants were asked questions one through ten and were also asked questions twenty-one through twenty-eight. The third interview guide (Appendix G) was used to interview the Designer and Manufacturer/Dealer participants who were asked questions one through ten, and then were also asked questions twenty-nine through thirty-four.

Questions asked of all Interviewees: Questions 1 through 10.

Question 1 asked: If you were asked to teach 35 college students for a semester, based on your preference for a pedagogy, which one of the two model space types would you choose, and why?

This question was designed to allow the participants to warm to the topic and to give them time to focus. It was also designed to introduce the visual aid (Figure 2, page 14). This question also aimed to uncover more detail about the participant’s bias toward learning and to flush out any background information concerning the interviewee that was not obvious from their job description. This general question was posed to all interviewees regarding their relationship with
classrooms as a built environment and their awareness of pedagogy. I wanted to understand whether professional experience had any bearing on administrative decisions that determined the factors.

Question 2 asked: *When building new or renovating general-use classrooms, what factors are considered when deciding between model types?*

This question was designed to probe the interviewee’s knowledge of the development of general-use classroom. It asked administrators to discuss their input into decisions concerning classroom model types. It was designed to probe specifically for factors influencing their decisions, to learn how their decisions were crafted and what factors they used as a basis for their decisions.

Question 3 asked: *When renovating or building new spaces, who are the administrators that make the primary decisions concerning the classroom model type?*

This question probed interviewees’ knowledge concerning the decision process. It was designed to determine who made the decisions and whether the decisions were made unilaterally by that administrator or collectively by a block of administrators. It looked into how decision-making processes factored into the priorities that determined the type of general-use classroom chosen.

Question 4 asked: *When renovating or building new general-use classrooms; describe the processes, procedures and policies, beginning with the identification of the need to build the general-use space, through to the implementation of the project resulting in completion of the equipped space?*

This question examined the processes, procedures and policies in place at each institution. It explored the nature of decisions and the mechanisms used to develop and enact decisions, and
whether decisions were made unilaterally or collectively within the institution. It was designed to determine the factors that emerged as priorities that resulted in the determination of one type of general-use classroom space or another.

Question 5 asked: *When renovating or building new general-use classrooms, do the processes, procedures and policies work together with all the other criteria to build the general-use classroom space? Do the processes, procedures and policies differ when building new space or renovating old space or do they remain the same?*

This question was designed to discover the criterion used by each of the subject college administrative departments and to determine the processes, procedures and policies in place at each institution. It explored whether internal paths affording change were clear or blurry when making decisions concerning the design of general-use classroom space. When building new or renovating did they differ or were they the same?

Question 6 asked: *When renovating or building new general-use classrooms, who determines the design programming?*

This question explored who within the organization(s) might gather data about classrooms and who might determine the programming for the renovation of existing and new space. It probed the decisions around the development of classroom versus purpose-built space. Additionally this question explored the processes and procedures in place that determined classroom types.

Question 7 asked: *Who determines the changes required to update the general-use classroom?*

This question was designed to explore who is responsible for change to classrooms. It explored whether the change was formulaic or static without input from users or was there
frequent input from others to include the consultants? And was the discovery of who had input into decisions a factor in the determination of the outcome of the general-use space type?

Question 8 asked: *How often is research conducted to determine changes required to update the general-use classroom and who participates?*

This question explored who participated in research studies and how often they were conducted. It questioned who examined the processes, procedures and policies that might influence the changes that would result in updates to general-use classrooms.

Question 9 asked: *Given time, will model #1 classrooms be replaced by model #2 classrooms?*

This question probed the interviewee for signs of change. The question was designed to work in tandem with question four by giving interviewees the opportunity to comment once more on flexible versus inflexible general-use classrooms. This question asked interviewees to think about the future and to predict the shape of colleges to come. The question probed interviewees for their vision of classrooms or campuses.

Question 10 asked: *What do governments consider their role in ensuring that campus space is appropriate in that space supports their main objective which is to support student success? That is, spaces are deliberate in delivering their mandates to support both education and growth?*

This question was designed to explore the role of government and seek its level of responsibility in the success of students and to discover the degree of responsibility it had in the development of colleges. This question investigated whether the government was a supporting partner in fostering success for students by providing appropriate spaces for learning.
Questions asked of the Education Specialist: Questions 1 through 20.

The Education Specialist was asked the same questions one through ten. In addition, this informant was asked questions eleven through twenty.

Question 11 asked: Does government funding of colleges become a priority in the decision-making process that influences administrators of campuses to choose one type of general-use classroom over another?

This question explored the impact of government funding on campus design. It probed the consultants’ knowledge of priorities in the administrative decision-making processes that might influence the choice of one type of general-use classroom over another. The question was also posed to discover concerns about the adequacy of funding for colleges.

Question 12 asked: Are government policies, processes and procedures problematic, and if they are, do they in turn influence administrative decisions on campus “built” environments?

The intent of this question was to investigate any problematic areas in government policies, procedures and processes. Literature indicated government relations with colleges were problematic (Cooke, 2007; Hook, 2002, Lang, 2005, 2008). Exploring to what degree and how this question manifested itself in behaviour, related to my topic of interest.

Question 13 asked: Do you know if college administrators make informed decisions about the kind of space type used?

This question was designed to explore the interviewees’ understanding of who the college administrators were and how they worked. The expectation was a short answer, do they or do they not make informed decisions followed by an explanation. Suspected factors might emerge concerned the prioritization of limited funding and the consultants’ concern that administrators do not appreciate the importance of spaces as learning environments (Scott-Webber, 2012a). The
point to discover was whether administrators thought only about classroom space in terms of revenue and whether there were other pressures that factored into their decision-making processes.

Question 14 asked: *Do governments foresee a policy to earmark funds in order to influence future changes to general-use classrooms?*

This short answer question probed whether this expert saw future funding changes. Did they foresee a policy change in funding? The question allowed the interviewee to rework their previous responses about funding. It further allowed the interviewee to comment on current behaviour with a view toward probing what they thought might be future changes.

Question 15 asked: *When renovating or building new general-use classroom spaces, who interviews the user in order to establish a needs analysis document in order to provide programming data?*

This question concerned the processes, policies and procedures employed by colleges when building new or renovating existing classroom spaces. It was a very practical question concerning common industry design practice. It probed what was known about the process of design construction related to the way in which colleges worked, how much college administrators knew, and whether they followed standard processes. An aim was to discover whether colleges or consultants provided a ‘needs analysis document’ for classroom design. To that end the outcome of this question would indicate not just the structure of the planning process but also whether there was feedback from students and academic communities that supported a type of classroom. In addition the response to this question would reconfirm the interviewees’ preference for flexible or inflexible classrooms.
Question 16 asked: *When renovating or building new, who are the administrators that make the decisions concerning the classroom model type?*

This question probed interviewees to discover who were involved when designing classrooms: who made decisions and who were the administrators directly responsible for classroom space.

Question 17 asked: *When renovating or building new general-use classrooms, describe the processes that occur, from the identification of the need to build through to the implementation of the project?*

This question was posed to discover more detail about processes. It further probed the interviewee for greater details previous questions might not have included. The question was repetitive but its purpose was to discover whether the interviewee might alter previous responses by contradiction.

Question 18 asked: *When renovating or building new general-use classrooms, do the processes, procedures and policies work together or do they differ when building new space or renovating old space or do they remain the same?*

This question was designed with three purposes in mind. The first was to discover the interviewees’ view of the criteria used by colleges to determine their processes, procedures and policies. The second was to explore whether the interviewee was aware of internal operational paths used by colleges. It probed for clarification concerning when colleges build new or renovate old space and asked the interviewee if they were aware of any differences in college policy. The third point to this question was related to question five comparing the interviewees’ responses to the two questions in order to see how much the interviewee knew about what goes on in colleges.
Question 19 asked: *When renovating or building a new general-use classroom who determines the design programming of space?*

This question augmented the previous question, and probed for details of changes to policies, processes and procedures but also included *who takes this on*. The purpose was to look for more detail, to discover whether interviewees knew who in the organization did what and further it looked for places where interviewees might contradict themselves by responding with different information.

Question 20 asked: *When research is conducted to determine the changes required to update the general-use classroom, who participates?*

This question was designed to discover whether research of any kind was conducted within the institutions. If research was conducted, who conducted it, who evaluated it, and how was it disseminated. Additionally, this question probed whether participants read research papers and attended conferences to stay current with design and education.

**Questions asked of Government Experts; Questions 1 through 10 and 21 through 28.**

The Government experts were asked questions one to ten. In addition, these informants were asked questions twenty one through twenty eight. The interviews of the two participants were conducted individually.

Question 21 asked: *What part does government play in the development of college space, and how do government processes, policies and procedures influence administrative decisions?*

This question asked the interviewees to address specific government policies, processes and procedures that were directed at colleges. It probed their involvement concerning decision-making process and the development of campus space.
Question 22 asked: *How do government policies, processes and procedures influence administrative decisions?*

This question asked the interviewee to discuss their knowledge of policies, processes and procedures in place at the college level. It was designed to probe interviewees for their understanding of areas that were problematic between the colleges and government (Cooke, 2007; Hook, 2002; Lang, 2005, 2008). It was suspected there might be a difference in response to the question posed to college administration.

Question 23 asked: *What do governments consider their role to be in ensuring that campus space is appropriate in that space supports their main objective of supporting student success. That is, spaces are deliberate in delivering their mandate to support both education and growth?*

This question was designed to discover the influence government had on college campus design. The question targeted the government’s role and how it was linked with college space decisions.

Question 24 asked: *Does government underfunding of colleges become a priority in the decision-making process that influences administrators of campus space to choose one type of general use classroom over another?*

This question presumed the government interviewees were aware of literature that indicated college underfunding (Lang, 2005, 2008). It probed interviewees for a response to underfunding colleges and asked how they reconcile underfunding with the design of campus space.
Question 25 asked: Are government policies, processes and procedures problematic, and, if they are, do they in turn influence administrative decisions concerning campus environments?

This question presumed the government interviewees were aware of literature noting colleges find government policies, processes and procedures problematic (Lang, 2005, 2008; Cooke, 2007; Hook, 2002). The question probed their opinion regarding the behaviour of the government as it related to colleges, and asked if the government relationship influenced college administration to make changes to their classrooms.

Question 26 asked: Do you know if college administrators make informed decisions about the space types used within their campuses?

This question was designed to ask government representatives about the decisions made by colleges. It asked for their opinion probing whether colleges make sound decisions. The question was based on literature concerning the government need for accountability (Hook, 2002).

Question 27 asked: Do governments foresee a need to earmark funds in order to influence future changes to general-use classrooms? Do you foresee that kind of change in the future?

This question designed for government interviewees revisited question 24 that asked about government funding policy. Once again the question probed for more detail by asking interviewees to look to the future for policy changes. It prompted the interviewees to add their ideas about future changes to funding policies.

Question 28 asked: Given time, will model #1 classrooms be replaced with model #2 classrooms?
This question looked to the future and probed the interviewee for their prediction of future changes to the bricks and mortar classroom. Literature indicated that technology was changing how we teach and this question probed the interviewee’s awareness of future change to institutions (Scott-Webber, 2012a).

*Questions asked of the Designer and Manufacturer/Dealer participants; Questions 1 through 10 and 29 through 34.*

The designer and Manufacturer/Dealer participants were asked questions one through ten. In addition, these informants were asked questions twenty nine through thirty four.

Question 29 asked: *Can you describe the purchasing and design approaches by colleges as they relate to policies, procedures and processes?*

This question asked participants whether colleges approach design and purchasing in different ways or are they the same throughout the province.

Question 30 asked: *How often do colleges deviate from the design and purchasing patterns or do they continue to repeat the same for the general-use classroom?*

This question asked whether colleges deviate from purchasing and design standards for the inflexible general-use classroom. The purpose of this question was to coordinate the response with the data obtained from the site visit and to triangulate with the discoveries in the Strategic Plans.

Question 31 asked: *Describe the processes that colleges use to procure teaching tools.*

This question sought details concerning the processes and policies used by colleges to buy furniture for general-use classrooms. It probed whether colleges deviated from purchasing standard furniture. It questioned whether the furniture purchased was consistent and probed to see whether the purchase orders were processed as default drawing from a standard, frequently
repeated pattern. This question was intended to relate to the data from the site visit and was intended to verify whether all purchases were the same.

Question 32 asked: How do college representatives learn about new teaching tools? Do they attend seminars to discuss the advantages and disadvantages of tools? [Added clarification for the Manufacturer/Dealer; Do College representatives come to your showroom to see new products or do you take new product to them?]

This question examined whether college representatives conducted research when purchasing furniture. It questioned whether colleges continued to purchase the same type of furniture over and over or if they deviated from previous patterns in any way.

Question 33 asked: Regarding government funds, do you know whether the government limits funding for furniture?

This question was designed to probe this interviewee’s knowledge about government policies followed by colleges. Its intent was to identify whether the government might be instrumental in keeping inflexible classrooms, which might be a factor in the design of space.

Question 34 asked: Do colleges demonstrate different focuses concerning policies, procedures and processes, or are they consistent and the same?

This question asked whether participants noticed differences between college focuses when forming design and when selecting tools. The purpose was to discover when designing space or when purchasing classroom tools, were there differences between the institutions or were they the same.

**Data Collection and Recording**

Data were captured over a six-month period of time. Merriam comments, “Qualitative researchers are interested in understanding what those interpretations are at a particular point in
time and in a particular context” (2002, p. 4). Data collection was from four sources. They were first, face-to-face interviews from college administrators who gave their emic perspectives. Second, from face-to-face interviews with external experts who gave their etic perspectives. The third source was data collection from the Strategic Plans from each of the respective colleges, and the fourth was from site visits to each of the studied colleges. The constant comparative method of data analysis was based on the site review/observation of classrooms at each of the three study colleges, the analysis of the Strategic Plans from each of the respective subject colleges and the data collected from interviews.

**Recording and transcription protocols.**

Four types of recordings were deployed. The first was the audio recording of interviews from key informants and participants who were asked questions from interview guides that formed the scripted instruments (Appendix E, F and G). The second was gathering data from site reviews via observation and notation and they required prescriptive approval protocol to include the signing of letters of consent (Appendix B, C and D). The third was the recording of findings from Strategic Plans posted on college websites. The fourth was input from consultants who confirmed the accuracy of data documented in emails. The following describes the recording methods for key informants, external experts and consultants.

**Interviews of key informants.**

Informed consent letters were forwarded to all interviewees. The letter explained all sessions would be audio recorded unless the interviewee requested otherwise (Appendix D). The alternate method used was note taking. All participants signed their approval letters to record their conversations with the exception of one interviewee, who allowed note taking only. A *Livescribe Smart Pen* was used (Livescribe, 2014). This device combined audio recording as
well as written note capabilities. As backup an independent recording machine was used. This researcher transcribed all of the audio recordings to hard copy using the Livescribe recordings and notes. Completed transcripts were forwarded to the interviewees. The typed hard copies were mailed, but if requested, respondents were sent an email attachment (electronic copy) for their review, revision and final approval. All but one interviewee requested small changes to their original transcript, which were subsequently made. One interviewee returned a heavily redacted transcript that became the accepted data for purposes of this study.

Data collection followed protocols required by the University of Toronto Ethics Board as well as the Ethics Boards of Colleges Red, Blue and Green. As required, a letter was sent by this researcher to the President at each college, requesting permission to conduct research at their college (Appendix B). Upon receipt of their signed approval, mailed letters were sent to the participants at each college requesting they participate in this study (Appendix D). Letters were also posted to all external experts requesting their participation in this study. Interviews were arranged through administrative assistants, or directly with the interviewees. Interview sessions were conducted in accordance with the interviewee’s availability but only upon my receipt of the signed approval letters from all participants.

A letter was forwarded to the subject college’s Facilities Planners requesting permission to conduct a site visit (Appendix C). Upon receiving the signed letter of permission interviewees were contacted. Site visits to the campuses were conducted in accordance with the college’s requirements that included an established time and date for walkthroughs with a security escort if required.

Interviewees had the right to withdraw from the study at any time without any repercussions. This approach was explained to the interviewees in the letters of consent.
(Appendix, D) and was explained in the interview sessions. A letter thanking the participants was prepared in the event that any participant should request to withdraw (Appendix, H). No interviewees asked to withdraw.

**Interviews of consultants.**

There were seven issues that surfaced throughout the interview of administrators requiring independent input from consultants who were experts in their respective fields. The expertise of the consultants provided factual data that were relevant to verify the subject and added to the credibility of this study. The method of collecting the data was a series of steps. The first was the identification of the appropriate expert. The second was to contact each respective expert by phone and pose the question requiring clarification. The third was to ensure the accuracy of the data by obtaining verification by confirmation in an email.

The issues identified as needing factual verification by external experts were; (1) the age and capabilities of the scheduling software system used in the colleges; (2) the cost of cleaning premises with flexible versus inflexible furnishings and related devices; (3) the performance capabilities of the Node chair and its suitability range for people; (4) the integration of online learning and how students might adapt if it were more widely used; (5) the continuation of the requirement for colleges to supply computers for students; (6) clarification of the process used to account for “bums in seats” in that this method is used for accounting for the maximum utilization of space; (7) how the government communicates with colleges regarding new initiatives and how colleges are expected to react.

**The matrix.**

Data collection originated from a central matrix (Appendix A) and grew to become instruments that were the interview guides used as the script for the interview sessions. The
matrix evolved over time. Notes of all meetings either casual or formal were recorded using the Livescribe Smart Pen or were jotted down in hard copy journals. Data in these formats was reviewed frequently to allow for modifications and changes. Findings in literature and the outcome of question tests initially resulted in large shifts in thinking about the matrix. However, this research was honed and changes made to the matrix resulted in refinements adapted for the interview guides and scripts used in interview sessions.

The matrix document framed the strategy of approach to data collection for exploring the study problem, which in turn formed the methodology used for this study. The structure of the matrix was a hierarchy. Located at the beginning of Appendix A, was the operative research statement that was central to this study. What followed were the primary and secondary research questions. The matrix was divided into three research categories. First came site research and second came the Strategic Plan documentation research that did not have human participants. This segment was followed by the category involving face-to-face interviews of administrators. Interviewees were divided into two groups - those interviewees who were from within the colleges and those interviewees who were external experts for these colleges.

The matrix functioned as a method of organizing data collection to capture a category or unit of information comprising of events, happenings and instances (Creswell, 1998, p. 56). The process of capturing and subsequent analysis of data was iterative and as such required rigour to understand when saturation was reached. To that end the matrix was organized into two parts. Part one had three questions that collected data from that did not require interviewees. Part two were questions forming the scripted data collection instruments that became the interviewees, scripted guides (Appendices, E, F, and G). The questions used by this researcher were aligned to the topic and were sequentially structured throughout all interviews. The structure was in place
as a means of discipline and organization but it did not inhibit the interviewees who were given as much uninterrupted time as they needed for their responses. When the respondents had completed a question I moved onto the next question. Using this methodology of question alignment and sequencing provided a structure that was useful not only while conducting interviews but when analysing data.

The participants interviewed are theoretically chosen – in theoretical sampling - to help the researcher best form the theory. How many passes one makes to the field depends on whether the categories of information become saturated and whether the theory is elaborated in all of its complexity. This process of taking information from data collection and comparing it to emerging categories is called the constant comparative method of data analysis. (Creswell, 1998, p.57)

Questions delivered in sequence formed categories of information when analysed that in turn become saturated. For example, interviewees were asked question Q.1 concerning the interviewees’ preference in teaching in either classroom model one or two. The pattern of reposes was saturated at interview nine in that all nine interviewee responses were the same. The data was easily coded and categorized as all interviewees responded they preferred learner-centered teaching environments. The theme that emerged was compared with the colleges Strategic Plan which agreed that the colleges were learner-centered in approach to teaching but there was a clear contradiction when this data was compared with the site review.

Data collection from documents and site visits.

Part one of the matrix asked three questions designed for the collection of data that did not involve human participants but were data obtained from documents and site observation. These
data were triangulated with the data from questions posed to interviewees using scripted interview guides.

Question A1 asked; *What is the cost to supply and install tools identified with each of the general-use classroom model types?*

This question was designed to discover whether there was a cost difference between the two types of classrooms. The outcome would be considered a factor that could be considered a priority in the decision-making processes used by administrators.

Question A2 asked; *What is the approximate quantity of general-use classrooms on each of the subject campuses within this study?*

The assessment included flexible as well as inflexible types of classrooms. This question was designed to establish factual information. This study presumed there were a large number of inflexible classrooms on college campuses. To answer the question required data collection by conducting site visits to each of the subject campuses.

Question A3 asked; *Do College Strategic Plans reflect differing learning philosophies, which in turn reflect differing classroom types within their built environments?*

This question was designed to discover whether the Strategic Plans differed from the objectives of their administrations. Analysis of the Strategic Plans would be compared with evidence gained from the site visit and the opinions of the interviewees.

*Data collection from participants.*

Part two of the matrix involved the development of three interview guides or scripts used by this interviewer in the interview (Appendices E, F and G). These were tailored to the type of work performed by the interviewees. The interview script was an instrument designed for college administrators who were employees within the colleges (Appendix E). It had questions posed to
the Vice Presidents Academic, the Directors of Facilities and the Managers of Purchasing. The interview script shown in Appendix F was designed for the Government and Education Specialist. The interview script for the Designer and Manufacture/Dealer experts relates to Appendix G.

There were four strategies incorporated into conducting the interviews. The first was close observation and listening to the interviewees throughout the sessions. The second was paying close attention to interviewees who would at times avoid direct answers to questions and would veer off on tangents. The third was the use of audio recording enabling the researcher to take very few notes throughout the interviews so that a full engagement in discussion with participants was possible. The fourth was the use of a visual aid, the pictures which described the meaning of an inflexible and flexible classroom (Figure 2, page 14). The aid maintained visual alignment with the spoken scripted questions.

The strategy of being prepared to ask questions, to listen to responses was embedded into the data collection methodology. The prepared interview guide acted as a script through the interviews (Appendix E, F and G). The interview guides allowed the researcher to conduct the interviews with less pressure in that predetermined questions gave time to focus on interviewee responses and an ability to concentrate on looking for contradictions and omissions. Experience in the field of interior design taught me that people often do not give in-depth deep meaning to questions on their first pass and that going back over issues often clarifies and adds depth of understanding. To that end another layer was built into the line of questions purposely designed to allow interviewees to return to past thoughts and statements. The audio recording of the sessions gave time to concentrate, to listen and observe interviewee body language during the
interviews. Further, recording allowed a review of interviews again and again and with each pass new discoveries were made.

Embedded into the data collection methodology was the use of a visual aid. This illustration (Figure 2, page 14) ensured interviewees had a clear picture of the kind of space talked about. The graphic aid visually explained what was meant by a flexible or inflexible classroom and was a constant presence frequently referred to throughout the interviews.

*The format of the face-to-face interviews.*

All participants were interviewed *in situ*, that is, in the offices where they work, or in the home as was the case for one external retired participant. The interview methodology was semi-structured (Merriam, 2002). Interviews were scripted (Appendices E, F and G) with ordered questions determined ahead of time but interviewees were encouraged to contribute additional information or to clarify points throughout the interview. As interviewees chatted, questions were asked that probed or clarified points as needed. The free flow of conversation throughout the interviews allowed the interviewees the opportunity to contribute deep, rich insightful information. The semi-structure of the interview sessions allowed the interviewees to contribute as much as they were willing to share.

Interviews of the sixteen participants ranged in length from 45 minutes to two hours. All interviewees, with one exception, permitted audio recorded sessions.

*Timing.*

The interviews using scripted questions with five external experts took place in December 2012 and the interviews of college administrators took place between January and May 2013. The collection of data coming from the on-site reviews of all college campuses took place between January and February 2013.
Data collection tools.

The matrix questions were developed based on an understanding of the phenomenon given my 12 years of experience in the field of education and from themes identified from literature. No validated data collection tools were found pertaining to the topic that was the focus of this study. The scarcity of research did not allow for comparisons with other research thus accommodating construct validity. For this reason, I developed the data collection tools and assessed them using content or face validity.

The structured questions of the Interview Guides (Appendices, E, F and G) used in this study arose from the questions asked throughout my thirty-year career as an interior designer where considerable interview experience was gained. They were also grounded in my master’s thesis research findings (Teitelbaum, 2008) where students were asked about their experiences with change from an inflexible to a flexible classroom.

An early opportunity to test the content of questions or face validity of interview questions came when I spoke at the League of Innovation in the Community College in March, 2009. My topic concerned appropriate classrooms. While there I engaged other educators in conversation related to my topic of interest, informally tested some of the questions and gauged their responses. I assessed for ambiguity, variability in interpretation, omissions, errors and illegibility. My aim as a researcher was to produce processes that provided the best likelihood of success.

The Matrix questions (Appendix A) were created at the beginning of my doctoral studies and were honed by testing. The matrix questions were tested for face validity in with professionals in administrative positions. The subjects were the Vice President Academic and the Manager of Facilities at an Ontario college. Two of the interviews followed the protocol for face
validity testing by asking relevant questions from the Interview Guide (Appendix, E) and then asking the participants if any of the questions were unclear or leading in any way, either by their sequence or by the wording. The data from these interviews were not included in the findings of this study. Nonetheless, the outcome concentrated efforts on the usefulness of the questions, the pace of the interview and the depth of the responses to the questions. The structure of the guide was changed. For example, initially it was thought all interviewees would be asked identical questions. However, a realization came that the questions posed had to relate to the job function of the interviewees. Thus, three hybrid interview guides were developed. Each of the interview questions, one through ten was the same for all interviewees. Questions eleven through twenty were tailored to the Education Specialist, questions twenty-one through twenty-eight were tailored to suit the Government representatives, and questions twenty-nine through thirty-four were focused on the interests of the Manufacturer/Dealer and the Designer.

A third interview was conducted with a University facilities management group. The matrix questions were tested once again for face validity with professionals in administrative facilities management positions. Questions were prepared and the meeting was recorded. Transcripts of the interview were forwarded back to the University facilities department. Participants were asked if any of the questions were unclear or leading in any way, either by their sequence or by the wording and made changes accordingly. The data that were the outcome of this session were not included in this study.

Data Analysis

Researchers that influenced the methodology adapted for the analysis of this study were Creswell (1998, 2009), Merriam (2002), Dey, (1993) and Eliot (2011).
Analysis of interview data.

Qualitative data were collected, transcribed and, upon approval by the interviewees, the raw data went through its preliminary open coding phase of analysis where documents were read and re-read with the intent to identify themes. Constant reading review and re-review continued until themes were identified and the data revealed saturation of categories. The categories identified were the interviewees’ perspectives regarding technology, government policies processes and procedures, institutional policies processes and procedures, funding, research, students, academics, administration, maximum utilization of space and scheduling. These became the headings used for the first stage of data analysis.

Identified aggregated themes were developed with the use of spreadsheets. Qualitative coding was a process that was both iterative and creative. It required a strategy including several passes through the material in order to locate the causal conditions that influence the central phenomenon (Creswell, 1998; Dey, 1993). The methodology included rigor in the coded identification of interviewees. These codes included colour codes and numeric coding of participants as well as the approximation of titles. Further, when writing this thesis non-disclosure of the gender of participants was ensured.

The first phase of analysis extracted statements that were sorted into themes. The result provided a general picture. Refinement was needed in that this overview of data was too general and not detailed enough for definitively isolated factors and priorities. The next stage began with the examination of interviewee responses to all scripted questions with a revised approach building upon the outcome from the first analysis but seeking to isolate specific factors. To that end the second phase of analysis required a change in the table framework design. This phase of
analysis used a different strategy that built in rigor by refining the data and using triangulation to test themes.

The second phase was the analysis of interviewee responses to each of the individual questions. Each spreadsheet had a header listing a question posed to the interviewees. Columns of data below indicated the interviewee code and transcript line. The data in the adjacent column contained the relevant sentence or sentences from the interviewee transcript. At this stage the statements were verbatim; I did not want to paraphrase statements until certain about interviewee intent, knowing that paraphrasing statements too soon can skew intent. The adjacent column cross-referenced themes that were the outcome of the first analysis to include technology, government, institutional, funding, research, students, academics, administration, maximum utilization of space and scheduling. The themes were coded. For example a reference to government was coded Gov and a reference to technology was coded tech. The last two columns were boxes used as check-offs; whether the statement made by the interviewee was student-centered or not. Statements cannot be isolated entirely otherwise their intent is misinterpreted or lost. The check-off was an assessment of the isolated statement based on the context of the surrounding statements that preceded or followed the extracted sentences. Within his text Dey outlines the process of absorbing data and reflection on it (1993, p. 88). Dey’s description of qualitative analysis structure outlined the process referred to as substantive concerns and it provided guidance used for this study. Dey instructs researchers to organize data into thematic categories to include conditions, interactions, strategies and consequences (1993, p. 85). The analyses of the interviews used two methods; (1) searching for themes in all data, and (2) looking for factors and priorities that were the outcome of themes. Upon completion I compared, triangulated, absorbed and reflected on the analysis of the raw data. The outcome of the exercise
of extracting data allowed the identification of themes emerging from the analysis. The themes were consistent and illuminated factors identifying administrative priorities used to make decisions about the type of general-use classrooms in colleges. The findings are discussed in Chapter Four.

A third strategy was incorporated into the methodology anticipating what was not said. Lopes’ thesis explained; “….. it is sometimes as important to reflect on and analyse what was not said as it is to reflect on and analyse what was said (Lopes, 2008, p. 309).” The strategy of uncovering what was not said was incorporated into scripts, which were designed to give the time to reflect and then probe interviewees by asking sub-questions. The strategy of listening for what was not said continued into the analysis stage where a closer analysis into what interviewees had avoided and not discussed was made. The overall strategy resulted in rewarding discoveries and confirmed the process of analysis of qualitative data is not entirely about producing results based on what we see but of producing an account of what we do not (Dey, 1993, p. 246).

**Analysis from site visits.**

The data collected in the form of notes and observations from the site visits was compared with the themes that emerged from interviewee data and from the Strategic Plans. The triangulation of themes revealed factors and priorities that influenced the administrators of space to choose one type of general-classroom over the other.

The analysis of data identified in the site reviews required an assessment of inflexible versus flexible classrooms within each of the respective campuses. The comparative analysis was a relatively straightforward undertaking. The process was to observe the quantity of different classroom types. This observation was documented by notes taken while conducting a site
walkthrough at each campus. Also undertaken was a comparison of the quantity of general-use classrooms with the number of purpose-built spaces assessing whether they were flexible or inflexible teaching spaces. These data were compared with the emerging themes, factors, and priorities identified in each of the interview transcripts. The analysis is discussed in chapter four.

**Analysis of strategic plans.**

The data collected from analysis of the study colleges’ Strategic Plans were triangulated with the site walkthrough and the interview data. Each of the subject colleges had a Strategic Plan articulating its educational focus. The Strategic Plan identified whether the focus of the institution was learner or teacher-centered. Each Strategic Plan was analysed by finding and then comparing what was written with the outcome of the site visit that identified the number of inflexible versus flexible classrooms on campus. The results were then compared with what the interviewees said were the colleges’ academic focuses.

The outcome of the data from the site walkthrough, the Strategic Plans and the interviews was triangulated to determine whether there was a consistency that would produce a match. This methodology was useful when identifying factors that became administration priorities and when determining the type of space chosen by the institution. It was also helpful when confirming the gap theory. When administrators weigh factors and determine priorities there might be a gap in understanding that education space should match teaching types.

**Methodological Assumptions**

It was reasonable to assume the interviewees provided their honest input, as they had nothing to gain or lose by contributing to this study. It was also reasonable to assume the methodology used to perform the services for this study was accurate and reliable as this researcher performed them. Further, to the best of my ability they were without misinterpretation
due to second party involvement as this researcher performed all tasks; the site checks were verified and accurate; interviews conducted, information transcribed and the themes identified were accurate.

The assumptive stance taken by this study was that administrators prioritize decisions concerning the type of classrooms to build into their campuses (Jukes & McCain, 2003, 2007; Scott-Webber, 2012a). This happened in spite of best practices indicating flexible general-use classrooms worked. However, inflexible teacher-centered classrooms did not easily accommodate new education models. Furthermore, literature disclosed statistical evidence that flexible classrooms supported a greater degree of student success than did inflexible classrooms (Neil & Etheridge, 2008; Kim & McNair, 2009; Lopez et al, 2009; Mandarino & Mattern, 2010). Additionally, historic evaluation concerning a preference for inflexible classrooms was documented in chapter two (Cole, 2005). It was reasonable to assume the responsibility for the continuance of this space was because of action taken by administrators who were in charge of determining the kind of education environment on college campuses.

The methodology designed for the analysis of data collected in this qualitative theory study was built around the investigation and the assumption of the cultural norms of administrators, their skill levels and the assessment of how they used their skills to make decisions. A scientifically structured approach was taken to collect data and the structure was followed through in the analysis of the data collected. Methodology assumed that factors would be disclosed through specifics in the language of the interviewees that described circumstances and then formed factors that prioritized their decisions about space.

Data were collected through one-on-one interviews and participant observation. Data were sorted and factors identified. Although the outcome was rewarded with rich information it
is known that examining data using the extraction method has its disadvantages as the human instrument (this researcher) had shortcomings and biases that might impact the study. It is impossible for researchers to be completely objective. However, Merriam (2002) notes researchers make a distinctive contribution based on personal qualities that are mixed and then joined into the data they have collected (p. 5). My contribution to this research study was my knowledge of interior design and education. What I did to minimize bias was to acknowledge my preference was the flexible learner-centered classroom. The strategy utilized this bias and as such it invited interviewees to either agree or disagree.

Limitations

The major limitation of this study was the findings were not generalizable because the colleges and participants were purposefully selected. In addition the study occurred within a finite time frame. Further, this study had a limited scope in that it was defined by location and by participants that focused the nature of the questions and streamlined themes. Random sampling of colleges and participants was not appropriate for the goals of this study and generalization to other colleges was not its intent. Rather the goals and intent of this study was to reach a deep understanding of the issues related to the phenomenon based on the experiences of the three study colleges included. Although not generalizable, the findings may be of interest and value to other Ontario colleges who struggle with similar issues.

This study was limited to a brief period between December 2012 and March 2013 and as such was only a snapshot of an occurrence recognizing that as time passes change occurs. The benefit of this limitation was the identification of a benchmark at a time when there were more general-use inflexible classrooms than flexible classrooms. Future research would seek to explore whether there have been any changes, and if so, how they were achieved.
An acknowledged limitation of this study was my personal bias. An exploration of what other researchers had to say identified strategies that helped me recognize what my biases might be. Acknowledgement helped limit my bias. The methodology deployed required recognition that I am biased by education and experience. Limiting this influence of bias was accomplished by creating distance through formal processes and procedures and by employing rigour in analysis methodology. Formal processes were the selection of colleges through a rigorous process of elimination based on facts and not a process of college selection by convenience. The process of formal protocol was used to gain permission to interview. The interviewees were not personal acquaintances or colleagues. The process of interviewing used a structured interview guide for formal interview sessions. Analysis of data was sifted through several formal processes before establishing discoveries.

The study conducted by Kelle in 2005 and revised in 2012 questioned whether a researcher could really free their mind, put away all bias and truly stand back throughout their research. He commented that methods and theories proposed by many researchers have had their pros and cons in that none were perfect. Most important to me was, any scientific discovery required the integration of previous knowledge and new empirical observation that researchers have always drawn on. It was previous theoretical knowledge that provided categorical frameworks necessary for the interpretation of description and explanation of the empirical world (Kelle, 2005). This insight was applied to analyze the research that was identified in the data. A measure used to limit my bias was the verification of identifiable issues. Even though some of these issues were within my realm of expertise other consultants were called upon to validate evidence.
Merriam commented that qualitative research was rich and thick in words and descriptions gained from the collection of data. However, she questioned whether the researcher who was the primary interpreter of information was seldom free from adding input. This, she said, added to the investigative strategy and produced a richly descriptive end product (2002, p. 6). To limit my influence and bias a strategy of coding raw data was put into EXCEL. To that end the data were filtered through a methodology demonstrating discipline and rigour. Where bias was most apparent was the approach to questions posed to interviewees. For example the main question: What factors become priorities that influenced administrators of space to choose one type of general-us classroom over the other? was biased toward a response that identified my preference for flexible general-use classrooms. However, the questions led to the rich data informed by these study questions.

**Ethical Considerations**

A requirement of the Ontario Institute of Studies in Education of the University of Toronto was to expedite an ethical review protocol. The description of the processes to be followed for this study was completed and approved by the Ethics Research Board in writing prior to commencement of data collection (Wakefield & Sharpe, 2012).

Ethical approval to proceed began with the comprehensive ethical review conducted by the University of Toronto and final approval to proceed. This was followed by request for approval by the ethics boards of the participating colleges. Approval to commence data collection began with written approval from the subject colleges.

Within the ethics approval submissions criteria were details concerning previous experience with this type of research investigation, a clear understanding for the purpose of this study, a description of processes used to select sites and participants, how sites and participants
were protected by following the Freedom of Information and Protection of Privacy Act (FIPPA) and the inclusion of communication protocols and coding processes assuring anonymity of interviewees. The ethics approval submission criteria included a detailed accounting of the methodology used for college and participant selection. Also included were details concerning how data would be collected, used and stored. The protocols undertaken for this study were and remain consistent with the ethical requirements of each of the institutions.

College protocols required a series of approval letters prior to undertaking interviews or site visits. Before making contact with any college employees a signed administrative approval was obtained from each of the Presidents of the colleges (Appendix, B). Names, addresses and phone numbers were gathered from public websites however these were frequently inaccurate. A telephone call to the executive assistants explained the purpose of this call and obtained permission to forward letters as well as corrected information. Consent letters were mailed to the Presidents of the colleges. Letters were forwarded in the request for consent packages. They outlined the purpose of this study, the rights of refusal and instructions to keep a copy. Interviewees were instructed to mail a signed copy back by using the self-addressed postage paid letter enclosed in the package. Upon signed approval, written consent was obtained for a site visit and a meeting with administrators at the colleges. The protocol was repeated for each. Appendix C has an example of the letter forwarded for site review approval and Appendix D has an example of the letter forwarded for interview consent. Neither site walkthrough nor interview took place until written consent was received. Again, signed consent letters were returned in a self-addressed postage paid envelope.
Upon receipt of signed approval, arrangements were made for an interview or site review. This occurred either by contacting the interviewees directly or was filtered through their executive assistance. Meetings were coordinated to suit the interviewees’ availability.

A similar protocol was conducted to gain approval to meet with government representatives, the education specialist, the manufacturer/dealer and designer. Names, titles and addresses were obtained from websites, checked for accuracy by calling administrative assistants or by contacting these individuals directly. Letters were mailed requesting approval to interview and a copy of the signed consent letter was returned by mail. Interviewees were then called for an appointment that suited their schedules.

The consent letter signed by the interviewee was produced at each interview session. Prior to commencing with the interview, the contents of the consent letter were reviewed repeating the purpose of the study, the process, asked if the interviewee was in agreement with audio recording. One interviewee did not agree and this person watched as a check was made that neither the Livescribe Smart Pen nor the backup recorders were turned on. At the interview sessions, interviewees were reminded of their rights to withdraw at any time and ended this segment of the session by asking if the interviewee had any questions or concerns. Just before concluding the interview sessions the interviewees were advised about how the information gained in the interview would be used. A transcript of the interview would be typed by this researcher and forwarded to them for their review. The interviewees were advised that they had the right to make as many changes they felt were needed and nothing would be used until they signed a copy of the transcript. Some interviewees preferred to receive the transcript electronically via email so that they could make changes while others preferred to be mailed hard copy. Any hard copy included an addressed, postage paid envelope. All but one transcript
required very few revisions until the interviewee was satisfied. However, one interviewee heavily redacted a hard copy of their transcript. Regardless of the number of revisions, transcripts were not used in this study until the interviewees signed them off.

To safeguard the interest of the interviewees and to protect their privacy, a Thank You letter was prepared by this researcher to be used in the event any of the interviewees wished to withdraw from the interview and transcription portion of the study at any time (Appendix H). The request for withdrawal by any means of communication would be swiftly addressed (Toronto, 2012). This letter denoted all data contributed would be erased immediately. The letter also identified who the interviewee might contact at the University of Toronto.

No interviewees asked to withdraw from the study. All participated.

All but one interviewee read their transcripts and returned a signed copy or emailed a copy with minor changes. The noted corrections were made and resubmitted for approval. Then the transcripts were promptly approved. One interviewee returned their hard copy transcript with redactions. An acknowledgment of their request for restricted information was made via email and this research used only the non-redacted portion of the transcript.

To safeguard the interests of the interviewees, to protect their privacy in this study, and to conceal the identities of the colleges and interviewees, coding and other measures were used. As an added precaution non-disclosure of gender that might identify interviewees was made. Site descriptions were not identified and some job titles of individuals were modified by using generic naming (Toronto, 2012).

The process of conducting interviews, Key Informants (B2) (R2) from Colleges Red and Blue revealed that job responsibilities had broadened. At their respective colleges other staff members had taken on responsibilities for classroom design. In response to this information an
addition of two Director Participants, D1 and D2 from colleges Red and Blue was made to this stud. All previously described proposals were followed.

All factual information and data included in paper documents were and will remain in a locked cabinet accessible only to this researcher. All electronic data relating to this thesis that are on said researcher’s computer are encrypted in accordance with University of Toronto policy. This data is not shared. The computer is pass protected and logged off when I am not present. All data gathered for the purpose of this study will be kept confidential and secure for a period of five years. At that time all hard copy will be shredded and all electronic information will be expunged from the computer. It should be noted that the Livescribe pen and tape recorder used to collect data have been locked in a file cabinet and will be wiped clean after a period of five years (Toronto, 2012).

Summary of Chapter Three

This chapter outlined the methodology used for this study, the research procedures and the rationale behind the design of this exploratory, descriptive case study of three colleges. Using qualitative study methodology participants were interviewed, a site visit to each subject college occurred and documents pertinent to this study were reviewed. The study included three urban colleges that had similar characteristics and were clustered around a large multi-cultural student catchment. The aim of the study was to uncover the factors that become priorities influencing administrators of space to choose one type of general-use classroom over the other. As well, to shed light on and determine the characteristics that were the barriers to flexible learning based on perceptions of administrators who were both inside and outside of the institution.

Chapter four follows and presents the analysis of the findings that are the outcome of data collection. Chapter five draws conclusions and discusses implications.
Chapter 4: Presentation and Analysis of the Findings

This study asked; what factors become priorities in the decision-making processes that influence administrators of campus space to choose one type of general-use classroom over another. The question was designed to explore a phenomenon; the problem with a particular type of physical learning space, the inflexible general-use classroom that did not easily facilitate learner-centered pedagogies. It was designed to explore why, in spite of best practices identified through the research of others had this space not changed. Questions were directed to administrators at colleges who were responsible for the build-out of space on campuses (Swan, 2010). Questions were not asked of teachers and students who were the users of spaces but had little influence about space decisions. A further reason for posing questions to administrators and not teachers and students, was that there was research as described in chapter two, conducted with teacher and student interest groups. The outcome from these studies recommended the utilization of flexible space over inflexible space. This was because changed space promoted learner-centered teaching practices that benefited students (Steelcase, 2010a; Kim & McNair, 2009; Lopez et al., 2009; Neill & Etheridge, 2008; Britnell et al., 2012). However, research was not apparent in Higher Education Institutions (HEIs) where change from inflexible to flexible classrooms had not taken place. Questioning administrators about why change was not happening was the focus of this study.

What follows in this chapter are the analysis of discoveries as they were framed by three research questions. The first question sought discoveries about how limited research, silos of expertise, traditional and habitual use of standard space, technology, leadership and the generational biases of interviewees played a role in decision-making. The second question explored factors within policies, processes and procedures, including the examination of how
governance has influenced classroom types. The third sought factors that were new or factors that should have been discussed in interviewee conversations but were not.

Participants in this Study

Groups of consenting participants were interviewed. These participants consisted of key informants within the colleges giving their emic views, as well as external experts who worked with the colleges giving their etic views. The consenting participants were all adults with considerable work experience. The demographic makeup was nine female participants and seven males. Ages were judged to range from approximately thirty to seventy years of age. They were not racially or culturally diverse in that none were persons of colour and none (that I noticed) wore costumes or emblems identifying their religious affiliations. They were all administrators who influenced space in the colleges. Administrators were selected because of their job title or if their job descriptions included acting as overseer of campus space as they worked either within the study colleges or worked for these colleges.

Five additional persons were contacted that were consultants. They had specialized knowledge about technology, scheduling software, college space, custodial matters and government legislation. Three were female and two were male. This group’s diversity is not known as communication with them was via phone or email. Nonetheless these people were experts in their respective fields as their titles indicated they were managers or administrators.

Sixteen college administrators were invited, agreed to participate and were interviewed in this study for a response rate of 100%. These participants answered all questions posed and offered additional information resulting in approximately two hundred transcript hours of conversation. The interviews produced a quantity of data that was impressive as it was rich in both predicted and new information. Both systematic methods and my experience as a designer
and educator were used to evaluate the data. Factors were isolated and priorities assessed as they emerged from the raw data. However, throughout the analysis phase some interviewee statements required verification and further investigation. To authenticate what the participants had stated as facts, texts and articles were sourced, and input was sought from outside experts.

**Research Overview**

The research questions that follow were framed by the operative statement; in spite of best practice evidence that positively demonstrates flexible classrooms positively affect student success, inflexible general-use classrooms remain an important part of college campuses (Bickford & Wright, 2006; Lackney & Jacobs, 2002).

This operative statement framed the overall thesis question and was the lens used for the analysis of data from the scripted questions, the college site visits, and analysis of Strategic Plan documents.

The primary question was; what factors become priorities in the decision-making process that influence administrators of campus space to choose one type of general-use classroom over another? This question was positioned at the top of the hierarchy of inquiry. It formed the framework used in analysis of data. It divided inquiry and analysis of data into three, themes from academic research literature, themes concerning college governance and themes yet to be discovered.

The inquiry into themes identified from literature asked; what is the importance of general-use classroom space? To answer the question, a thorough search of data collected from the scripted questions was conducted. Factors influencing priorities that became barriers to change, the source of those factors and whether they were framed by limited research or perhaps, because of silos of expertise, were of interest. Also considered, was whether these factors were
due to the traditional and habitual use of a standard space model or, even issues surrounding technology. Additional factors derived from government and college relationships, funding, the lack of leadership, and finally the generational biases of interviewees were also reviewed.

In this inquiry into themes concerning the governance of colleges a question was asked; what were the policies, processes and procedures considered by administrators when determining a classroom model? Analysis of data examined responses to scripted questions for themes concerning operational issues that might influence classroom design. They included the structure and governance of colleges and how these influenced decisions concerning space. Literature in Chapter Two indicated the clash between colleges and government regulatory bodies had negative effects on colleges and in turn influenced the brick and mortar campus. Hook (2002) identified problems with governance due to excessive accountability, Cooke (2007) indicated the monopsony structure of governance was troublesome, and Lang (2005, 2008) identified funding was problematic. Consequently, a sift through the data looking for factors influencing administrative decisions that might influence classroom types, was conducted.

A consideration that there might be something unforeseen prompted this question; what are other unanticipated factors that might influence administrators when determining the general-use classroom space type? Inquiry was viewed through the lens of this question. Upon looking for themes and factors not found in the literature review, this question sought to discover unforeseen information. Data were sifted and sorted seeking factors derived from three sources. One was from transcribed interviewee conversations. Another source of data was from Strategic Plan documents, and yet another was from site visits to the colleges. Observations on site visits confirmed the prolific use of inflexible general-use classroom types on each of the subject colleges.
Discoveries

The following presents the analysis of data and the discovery of factors that are reported under the three questions that were the focus of this study. The findings describe the context in which administrative decisions were made and include what was discovered about the interviewees’ worldviews as they related to their work. They described the characteristics of classroom types and the importance placed on the teaching spaces. The analysis identified findings that emerged from thirty-four questions used as interview guides. These were merged with data from the subject college site reviews and their Strategic Plan documents.

The analysis of data and the discoveries from the data revealed that at times the boundaries of the three research questions crossed. For this reason the analysis of the data was an iterative process.

In analyzing the findings, many factors were identified, of which one was a priority, and that was the concern over the impact on funding for colleges. This was a surprise. This study began with an expectation to find many factors driving many priorities. Some factors were based on verified information while others were based on questionable information. Nonetheless they were repeated to support the priority of obtaining or retaining maximum funding for the colleges.

Research question #1: What is the importance of general-use classroom space?

The interviewees were asked questions stated in the interview guides (Appendices E, F, G). Their responses differed based on factors that related to the interviewees’ expertise and knowledge including their limited research experience, their perceptions of the importance of the classroom, their isolation as departments forming silos of expertise, the traditional and habitual use of standard space, issues around technology, and generational biases.
**Contextual factors.**

The answer to the question regarding the importance of the general-use classroom was analysed by first discovering the views and the context of the interviewees. It was thought the question could only be answered properly when seen through their eyes. The interviewees responded to this question using two lenses that were incorporated into their view of the classroom. The first lens was through their training and experience and second from their exposure to research concerning education space. Analysis of data viewed from the perspective of the interviewees revealed the importance given to the general-use classroom based on their understanding of the situation.

**Training and experience.**

An understanding of whether training and experience in design and teaching influenced and perhaps determined the perceived importance of the classroom was sought.

Data were collected about interviewee’s education and training in interior design and/or in teaching and education and then discoveries were tested. Table 4 is a summary of findings concerning the education and experience of the interviewees. The three figures that follow explain the results in more detail (Figures 19, 20 and 21).

Thirteen of the sixteen participants, or 81.25% had *no* design training and three of the 16 (18.8%) *had* design training. Half of the participants (n=8) had both training and teaching experience in a college. Half of the participants (n=8) *did not* have training and teaching experience in a college (Figure 19).
Table 4

Summary of teaching and design expertise of interviewees.

<table>
<thead>
<tr>
<th>Interviewee Code</th>
<th>College Training &amp; Teaching Experience in a College</th>
<th>Interior Design Training &amp; Experience in the Field of Design</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Have.</td>
<td>Don’t Have</td>
</tr>
</tbody>
</table>

Key Informants providing an internal (emic) view

| G1 | x     | x         |
| G2 | x     | x         |
| G3 | x     | x         |
| B1 | x     | x         |
| B2 | x     | x         |
| B3 | x     | x         |
| R1 | x     | x         |
| R2 | x     | x         |
| R3 | x     | x         |
| D1 | x     | x         |
| D2 | x     | x         |

Interviewees Providing an External (etic) View

| G1 | x | x |
| G2 | x | x |
| DEAL | x | x |
| EDS | x | x |
| DSGN | x | x |

Figure 19. Design and teaching experience for all interviewees (n=16).

Eleven of the 16 interviewees provided an inside (emic) perspective. Nine of the eleven (81%) had no design training; two (18%) had design training; eight (72.5%) had training and
teaching experience in a college, and three (27.5%) had no training and teaching experience in a college (in Figure 20). None of the interviewees had teaching and design training experience.

Figure 20. College interviewees with design and teaching experience.

Five interviewees provided an outside (etic) perspective. Four of the five (80%) had no design training, one (20%) had design training, and none had either design training or teaching experience in a college. Figure 21 presents these findings.

Figure 21. External Expert interviewees with design and teaching experience.

To summarize the findings, it was discovered that decisions about classroom space were made by administrators who either did not have design experience or training or did not have teaching experience or in some instances did not have either. The finding that administrators in
this study lacked design experience or teaching experience, or lacked both, was considered to be a factor that could influence decisions about classroom importance as well as decisions about the type of education space to use.

*Knowledge through research.*

Analysis of data concerning research on classroom space added a layer to the context in which administrators made decisions about classroom importance. It was considered that research was knowledge and knowledge shaped decisions. Also taken into account was that research coloured the lens from which administrators viewed the importance of the general-use classroom.

The Education Specialist and Government interviewees who worked with all of the colleges in this study agreed that there was a lack of research conducted about college space but more importantly classrooms were not investigated. Ignoring the classroom appeared to colour the value and importance of the classroom as a teaching environment. In the opinion of the Education Specialist;

> What we find when we do work with the colleges is that, over all, there is very little understanding about what the classrooms are all about and the role they play in the delivery of the mission of the institution…… Administrators are not informed regarding decisions concerning classrooms, let alone space. No, they are totally out to lunch. (EDS)

The analysis of the data, found research on learner-centered classroom space was historically sparse. In the opinion of the Government interviewee; “The government understands why we do not have any evidence-based information concerning [classroom] space because evidence has never been collected” (Gov1). The interviewee added that the space was not valued so why bother.
Guideline questions in the scripts investigated whether interviewees working within colleges conducted their own research about their campus classrooms and discovered there was nothing done. The response was no, they did not conduct internal research because they were under the impression it was done by others. The Facilities Planning interviewee B2 explained research was done by third party consultants who were connected with those that produced the Colleges Ontario Facilities Standards and Inventory Report (COFSI) used by colleges (E.C.S., 2012). Facilities Management interviewee B3 said; “I can’t answer that question [about conducting research]. I don’t know. That would be an academic procedure.” The V.P. Academic interviewee B1 commented that at their college they realized a gap in space-related research existed and had seconded someone to fill the gap but noticed this person had left out classroom design in the investigation. They continued that the omission was not important as research data came from KPI (Key Performance Indicators) but admitted the results would not cover classroom facilities very well.

Seventy-five percent (n=12) of all the interviewees also commented they did not read scholarly articles about education space, nor did they attend seminars about education space. Some commented they made decisions based on anecdotes, the outcome of meetings and word of mouth (R3; B3; D2). Regarding potential sources of information, interviewee R1 (V.P Academic) commented, “Nothing formal, other than meetings where we discuss facilities, but that does not guarantee that things will get done, it just gives us a method to obtain perspectives.”

Some interviewees admitted they did not have time to read much of anything. The Design interviewee commented;
As for research, we are always looking at space but do not read about new space - no, we do not conduct or participate in research into what we are doing or why. Me, research?

Not really – it is too tough to get through. (DSGN)

The Government interviewee (Gov2) commented that no one had time to read. Two interviewees commented that they kept up with trends by visiting other institutions to see what they were doing but added, it was because they did not have time to do more (R2; B2).

Research question one asked interviewees about the importance of the classroom. Their responses were filtered through their perspectives that were their experiences and training as well as their familiarity with research concerning classrooms. A summary of the commentary concerning their view of the importance of the classroom indicated that they were not concerned with the classroom, as it did not factor as an important space worthy of researching or reading about. This response was interpreted as a lack of understanding that classroom space as a learning environment did matter. However, when investigating the importance of classroom space as a financial entity it was discovered that classrooms, especially inflexible general-use classrooms were of great importance to the institution.

*Silos of expertise.*

Silos of expertise influenced decisions about classroom space types and determined the importance of the classroom. For instance, the Registration and Finance Departments were instrumental in forming decisions made by Facilities Management and Facilities Planning departments. “Facilities Planning are strongly aligned with other silos [Finance and Registration] within the institution to create a power block which is entirely focused on finance and the maximum utilization of [classroom] space,” observed the Director in College Blue (D2). The Vice President Academic at College Red (R1) commented that Facilities Management,
Registration and Finance operated as an administrative block that made all decisions concerning space. This administrator pointed out these decisions included strict observance of the institutional policy of space standards concerning inflexible general-use classrooms. The V.P. Academic at College Red commented, “The role of Facilities Planning is to retain [classroom] space standards and to report to the Finance Department.” Participants both from Facilities Planning (R2; B2) and Management departments (B2; B3) saw their roles as order takers.

Those in College Green, the V.P Academic and the Facilities Manager (G1; G3), agreed they took orders from their Facilities Planning department, but added that at their institution their Facilities Planning department also influenced and assisted with classroom planning and design. The Designer working with all of the subject colleges commented that Registration and Finance departments controlled both the design and scheduling at the colleges. The Facilities planning role was to coordinate the process and identify the number of students to plan for in a standard classroom space (DSGN).

The Vice President Academic at College Blue (B1) explained their processes for classroom change at their college. Committees within the college had an active role in initiating discussions concerning changes to learning environments. However, discussions went nowhere because the development and building of teaching spaces were the responsibility of Facilities Planning who determined the final outcome of space design. Requests for change were either refused or reasons were found to prevent change. The V.P. Academic in College Blue (B1) noted, “Facilities planning are the primary group that determine space. They do not consult with users or give users what they ask for, especially flexible space.” Interviewees commented that the role of Facilities Planning in Colleges Red and Blue was to police adherence to the policy of standard inflexible classrooms and to report to the Finance Department (R1; B2). Participant
comments in Colleges Red and Blue explained that arguing over small changes to classrooms design was a pattern where Facilities Planning had heated discussions with faculty and other administrators. This information explained why Facilities Planning was viewed as uncooperative (D1; D2). What also became clear was Facilities Planning alignment with Registration and Finance departments. Director interviewees (D1; D2) at Colleges Red and Blue explained that Facilities Planning, Registration and Finance departments formed a very strong political bloc with an agenda to maximize classroom space that came from a coalition between the three departments who had a vested interest in ensuring maximization for funding purposes. From the perspectives of interviewees (D1; D2; B1; R1) Finance, Registration, and Facilities Planning departments, grouped together to ensure that the campus was filled to capacity with students and that the load was taken on by maximizing standard general-use classroom usage on their campuses.

Academic preference.

The inflexible general-use classroom was the preferred model at the three colleges in this study (G2; R2; B2). Administrators in colleges cited academic faculty preferences or simply academics as they preferred to call them, as a reason to maintain the inflexible general-use classroom status quo. When given an opportunity to renovate and refresh classrooms or to provide new space, administrators in Colleges Red, Blue and Green choose traditional general-use classrooms over the flexible learner-centered option because they said their academic faculty did not want change.

The Facilities Planning participant (R2) from College Red explained that maintaining the standard classroom was an academic decision and what they wanted they got. Interviewee Facilities Management (R3) added that academics said, “You know, just give me my whiteboard
and leave me alone.” One participant (G2) from College Green commented that they were working on the elimination of inflexible classrooms but some academics insisted that they retain them. They explained that at their college their administrative team was trying to move away from the old paradigm, but old ways, old habits that were teacher-centered still prevailed. Participants from College Blue commented the academics at their college did not like change (B1; B2). The academics did not want to change either their teaching methodology or their familiar teaching-centered physical surroundings. They explained that in the end it was human nature not to change what they had been doing throughout their careers, which was to teach by using the old inflexible standard of rote with its tradition of row-and-column furniture. The Facilities Planning interviewee at College Blue added that, academics who had been teaching for a long time wanted the minimum required as they were resistant to changing their teaching delivery. The V.P. Academic at College Blue added, “When we build new, we look at things and think about things differently, whereas if we are retrofitting something that already exists, there is a tendency to just maintain the status quo.”

External expert participants also identified academic preference as a factor influencing the type of general-use classroom space chosen. Interviewees that cited this factor said most academics within colleges preferred teacher-centred education spaces because this was where they felt comfortable. The interviewee, Manufacturer/Dealer commented teachers had zero intention of asking for a flexible classroom environment (DEAL). The Education Specialist also stated academics played a role in maintaining traditional general-use space standards and were not interested in learning-centered teaching methods (EDS).

Interviewees were of the opinion academics preferred inflexible general-use classrooms because they were not messy spaces. They also added flexible classrooms required more
technology, and instructors were suffering from technology fatigue. The administrator interviewed at College Red said that teachers were saying, “I’m not interested [in flexible classrooms]. There is too much technology.” The interviewee added academics don’t know where to turn anymore because there was so much new technology coming and all they wanted to do was to teach the old-fashioned way (R3).

Other interviewees made similar comments about academics who, they said, did not like messy flexible classrooms. What these academics wanted was consistency in their teaching space that was row-and-column desks and chairs (D1; D2; DSGN; R2; G3).

When asked how they knew about these preferences, these interviewees commented that their sources of information were hallway discussion meetings and other forms of casual feedback (B1; G2; G3; D2). The V.P Academic at College Red said, “Nothing formal, other than meetings where we discuss facilities, but that does not guarantee that things will get done, it just gives us a method to obtain perspectives” (R1).

**The value of the inflexible classroom.**

Identified in the analysis of the data was the importance of the inflexible general-use space as a standard college environment. It was the type of space within the college that provided the maximum utilization of space to obtain funding.

The general-use classroom was historically about the maximization of space that led to maximum funding in colleges, and for this reason, it was not going to change any time soon (Gov2). The Education Specialist said the inflexible general-use classroom had been “bouncing along for 30 years” in its current configuration and would not change (EDS). All eleven of the participants from the colleges in this study stated that their college had a policy that provided for row-and-column inflexible classrooms. College Red had a written policy of standardized
classrooms (reported by R1; R2; R3 and D1). Colleges Blue and Green had unwritten polices (reported by G2; G3; B2 and B3). At the time of this study there were a limited number of new flexible classrooms introduced into old facilities; three into College Red and fewer than ten each at Colleges Blue and Green. This was confirmed by my observations during site visits to the three campuses.

The provision of seats for students in college classrooms was largely dependent upon two factors. The first was the physical capacity of inflexible general-use classrooms within the institution, and the second was maximum utilization of scheduling time (DSGN). The Vice President Academic in College Red explained that decisions to retain the inflexible general-use classroom standards were driven by funding and the need for maximum utilization this space accommodated. The drive to maintain this space was internal to the institution, as overseen by the Registrar and Finance departments, but the need to do so originated from government ministry policy, which exerted external pressure by making operational funding dependant on student enrolment (G1). For this reason, the accommodation of students in classrooms was driven by funding factors (R1; Gov1). The ministry funding formula was driven by student enrolment, which then required maximum utilization of space, which had to exceed 85% of space usage in general-use classrooms (R2).

Further analysis of the data revealed maintaining the inflexible general-use classroom was important to support purpose-built teaching spaces (e.g., specialized labs) that did not provide maximized utilization but were the preferred education environments for specific program requirements.
**Purpose-built classrooms.**

The other type of teaching space on college campuses was referred to as the laboratory or purpose-built space. The building of this type of space was preferred by all interviewees in this study because it belonged to departments, was specifically designed to suit their individual program needs, and these spaces were thought to be more exciting than generic, inflexible general-use classrooms.

To explain, purpose-built spaces were designed for functions that were specific to their programs such as kitchens, robotics labs, art studios and airplane hangars. The COFSI Report guidelines (2012) provide a definition of the two space types. “The classroom is used for scheduled lecture, seminar or active learning activity that does not require discipline-specific equipment or furnishings.” The laboratory (or purpose-built classroom) was, “A scheduled room characterized by specialised equipment or a specific configuration for instruction and learning of a particular discipline and for student experimentation, observation, and skills training and practice (p. C-1).” The word *scheduled* in the COFSI Report was underlined. The Education Specialist provided clarification, commenting that, although the two space types used a central scheduling system, the control of the schedules differed (EDS). The Education Specialist explained that maximum utilization was an absolute necessity as general-use classroom occupancy was tied to the *bums in seats* funding formula. However, purpose-built spaces did not follow the same guidelines as those for general-use classrooms as purpose-built classroom space utilization was within the control of the individual programs. That meant purpose-built space was not utilized by other programs who were kept out by not sharing the space, thus maintaining exclusive utilization, whereas general-use space was scheduled for all programs (D1; D2; R1; B2). The V.P. Academic at College Blue added that the priority at colleges was to build purpose-
built labs. Other interviewees agreed and added that general-use classrooms were to make up the difference in seat capacity with purpose-built classrooms to support maximum utilization for funding purposes (B2; R1; D1; D2). While Colleges Red and Blue appeared to be locked into the pattern, College Green was exploring a college-wide strategy of non-ownership for purpose-built or general-use classroom space by single programs. They were looking into strategies for sharing all spaces within the institution as a means of maximizing space to gain funding (G2).

Interestingly, the Manufacturer/Dealer interviewee commented that government and colleges preferred to build purpose-built space and not classrooms mainly because purpose-built spaces were more interesting and they were an opportunity for positive media publicity (DEAL). The Government interviewee agreed that purpose-built space provided a photo opportunity for the Minister (Gov2). The Designer added that custom purpose-built spaces were more fun to build and this space got “tons of attention” that did not happen with general-use classrooms that relied on standards (DSGN).

A characteristic of purpose-built classrooms was their unique individual designs, built to suit the needs of specific programs. However, the inflexible classroom was said to have two characteristics that made it desirable. One was that it was familiar to everyone (n=16; 100%). The second was that the inflexible general-use classroom was efficient to reproduce. Administrators agreed that the inflexible general-use classrooms still existed as it was more efficient to apply a fixed seating configuration. Their thinking was based on an evaluation of the cost per classroom with the view that this space offered the greatest utilization of space for the college (B1; B2; R2; G2).
Maximization of space.

The importance of the inflexible general-use classroom was that this space worked as a means of providing maximum utilization of space and time tabling in order to obtain funding accomplished by a method of counting students as *bums in seats* (Scott-Webber, 2009a). The phrase *bums in seats* was associated with a government funding formula that granted funds in accordance with the number of students in attendance at the institution per semester (Clark et al., 2009). The Education Specialist explained the real value of the inflexible classroom was the funding it generated. In a specific week in September, colleges calculate how many students, “bums in seats” they had registered. The bulk of the number came from accommodation in classrooms and not in purpose-built spaces. In addition to counting *bums* Registration and Finance departments consider the maximization of hours that are possible to schedule into these spaces per week (EDS).

The maximization of space for classrooms was also explained by the V.P Academic at College Blue who added this was a historically driven policy, “Remember the days of SuperBuild when you’ve got them to commit funds to a headcount or bums in seats? That’s still the case. We are still being funded for building based on a commitment to a certain number of students.” This interviewee went on to explain the need to augment the shortfall of seats from purpose-built labs;

…and if you’ve created these rich purpose-built labs that only handle 20 students, then you’re making up the difference somewhere else. So you put in a lot of students in very condensed spots. So that is why we build these inflexible general-use classrooms. (B1)
**Timetabling software.**

The importance of the inflexible general-use classroom was its ability to support maximum timetabling. The general-use classroom provided the physical space for students and was loaded to maximum by the scheduling system which provided timetables that filled classrooms to maximize the use of time available in a day. However a problem was discovered in all three colleges, as the current scheduling software making up timetables was not flexible enough to accommodate changes to room allocation throughout the semester. This problem created holes of unusable time throughout the day and holes in the timetable meant less maximization of the classrooms, which had an impact on funding. Nonetheless the old scheduling system was the best that the colleges had at the time of this study. It had been a companion to the inflexible general-use classroom for a long time and even with problems neither was going to change. (G3; B2; R1; D1).

To verify this, calls were made to a consultant to confirm the age and usefulness of the scheduling system (Personal communication; Scheduling Consultant, email, May 31, 2013). The email response indicated the type of scheduling software in use at most colleges was a basic platform uploaded into another software system accessed by the entire college. It was very old software that had not been updated to meet current flexible scheduling demands. The age was unknown but presumed to be approximately the same age as the institution, at least three decades old.

It was discovered that central control was familiar, historic and unchanging and the responsibility of the Registration Department. Their interest was the number of bums in seats that was reported to the government at audit date which in turn funded the college. It was also discovered the Registration department preferred inflexible classrooms because these classrooms
had historically provided maximum utilization of space and schedule (R1). Two interviewees (D1; D2) commented similarly saying the maximum utilization of space and scheduling should be at the recommended COFSI 2012 limit (80% utilization) or should exceed the limit to 85%. They added that maximization of space and scheduled timetable was important and was achieved with the traditional general-use classrooms.

Interviews confirmed what was discovered in the literature. The inflexible general-use classroom was used (i.e., occupied by students) the most. As well, it was the main source for the SuperBuild “bums in seats” funding calculation (Eves & Lindsay, 2000). Thus it appeared that the inflexibly of the scheduling system to maximize space and gain funds was a factor that contributed to maintaining the status quo.

**Effort.**

Interviewees further disclosed they would not change classrooms types because there was too much effort required. Effort was defined as a combination of challenges for administrators both in cost and time. B3 and R3 commented whenever classrooms were built outside of the standard fixed space plan, there was an understanding the process was challenging and it required effort and additional cost to complete. Administrators in College Blue agreed that in order to create a general-use classroom that could be used as a flexible teaching space required additional investigation and coordination with the Facilities departments. They agreed that deviating from the standard inflexible classroom required too much coordination and caused frustration to determine the needs of all stakeholders (D2; B2; B3). An interviewee from College Blue commented that change from inflexible to flexible classrooms would require the canvassing of people to find out what they needed. It would also require they find funds to go forward and effort to work toward change. This was currently a challenge. Further, administration had
maintained a hard stand defending inflexible classrooms at their institutions and they viewed changing classroom types was an admission that it was possible to provide an alternative to the inflexible teaching environment. The V.P. Academic interviewee in College Blue said; “Well, we really don’t need to do it [build inflexible general-use classrooms] that way” (B1). R2 and R3 from College Red concurred.

Effort to change classroom types through exposure to new innovation was limited. The Manufacturer/Dealer interviewee (DEAL) who represented a large manufacturer of education equipment commented that faculty from the colleges did not participate in education seminars provided by their company. In fact the number of education seminars about new innovations in classroom tools and teaching that were once the norm was reduced. Further, their company currently thought carefully about offering a college focused seminar. This was due to extremely negative feedback from a special education seminar given to a group of college academic teachers who said they resented the presentation. The academic attendees to the seminar said it was a waste of time because their colleges did not make an effort to change classroom types. As a result the Manufacturer/Dealer interviewee would only offer seminars to Facilities departments and only when they had something for them to see or when the Facilities departments asked to come and see something that was of particular interest.

Comments from the Facilities Planning and Management departments suggested they focused their efforts to keep academics away from classroom decisions. “A few academics may want to deviate and request change but it is Facilities Planning and Management who push back in order to retain rigid standards” (R3). The Facilities Planner at College Blue (B2) commented, “I prevented a group of academics from seeing products. I did not want them to get any ideas about products that they could not have.”
In the site visit to the Colleges Red and Blue it was discovered there was little effort made to use flexible classrooms. Interviewees commented negatively about these new flexible classrooms. They remarked that inflexible classroom standards were in place in their Collages so that they did not have to expend the effort to initiate change (R2; R3; B2; B3).

Not all colleges found that effort was an issue. In contrast, participants from College Green remarked favourably about their experimentation with flexible classrooms. Comments from the V.P. Academic, Facilities Planning and Facilities Management at College Green reflected their determination to make the effort needed to overcome funding issues through strategies that would ultimately give the institution flexible classrooms (G1; G2;G3).

The participants’ views differed regarding the effort needed to provide purpose-built rather than general-use classrooms. Where college participants expressed the view they did not want to put in the effort for re-designing classrooms, the Designer, Manufacturer/Dealer and Government interviewees felt the effort was worthwhile for purpose-built space. They commented there was a willingness to change and upgrade technology but there was no appetite in the colleges for applying either the funds or the effort needed to convert space to flexible general-use classrooms (DSGN; DEAL). The priority for change was given to building new purpose-built learning spaces loaded with technology. These spaces were more interesting and were perceived as being more essential (Gov1). The data suggested the college priority was to spend funds and effort on building new purpose-built space and not on changing inflexible general-use classrooms to a more flexible teaching space.

**Generational bias.**

Generational differences surfaced as a factor that influenced the administrative decisions to choose inflexible classrooms. All but five of the key informants (n = 11; 69%) in this study
referred to their own baby boomer generation’s teacher-centered learning experiences as students. The Facilities Planner at College Blue (B2) commented, “I grew up with rote learning in rigid classrooms and it did not kill me.” The Facilities Manager in College Red (R3) said, “If it ain’t broke don’t fix it.” The Designer interviewee (DEGN) said, “The historic model still works”, and the retired Government Representative (Gov2) said, “The traditional model works….that is what most people think.” The Director interviewee in College Blue (D2) referred to faculty as the old guard and commented that the faculty’s mindset needed to change from the traditional/industrial model classroom to a learner-centered model.

The preference for inflexible general-use classrooms was a factor, in that interviewees did not see the need to change from inflexible learning space to flexible space. The data that emerged was not new in that the statements presumed this historically teacher-entrenched classroom model still worked. However, the literature review found the continuance of traditional education values was a deep concern to many researchers (Jukes & McCain, 2003, 2007; Scott-Webber, 2012a, 2012b; Shaw and Fairhurst, 2008). The surprising discovery found was the attitude of the participants in this study who justified the continuance of the inflexible classroom by trivializing and dismissing best practice findings in that participants were of the opinion that inflexible and not flexible classrooms worked. The Facilities Planner in College Green (G2) commented, “Traditional needs of the program are low – traditional lecture [in traditional classrooms] is OK.” The retired Government interviewee (Gov2) commented that colleges were only, “glorified high schools” and therefore did not need to change.

**Default setting.**

A factor that maintained the inflexible general-use classroom was its use as a default setting. The inflexible general-use classrooms were easy to replicate and this was particularly
handy when funding and construction time frames were tight. An advantage to being the default was the efficient replication of a standard set of tools applied using a prescribed method. Facilities departments ordered and reordered the same things. Three interviewees commented with similar remarks; when you say “classroom” it is understood to be the application of the standard, and that is the only programming (R2; B2; G3). Facilities administrators assessed the number of students only. The academic faculty might have a say in the design of classroom space but programming by use of a standard was driven by Registration and Finance according to R3, B1 and B3. The Manufacturer/Dealer interviewee commented that the inflexible classroom followed a model partially controlled by college Facilities departments who maintained and built out these spaces to meet a standard (DEAL). The Designer interviewee suspected that Facilities Planning departments probably wanted to keep the stock of the same kind of furniture that had always worked and was very careful not to deviate from a standard (DSGN). Two interviewees at College Red confirmed the Manufacturer/Dealer and Designer comments in that as policy at their college, when a classroom was requested, it was the inflexible general-use model or the default setting that was built in accordance with their college standards for classroom space (R2; R3). A reason for maintaining the default classroom setting was explained by the Director interviewee in College Blue (D2) who said this was because of the government practice of giving funds that had to be used within a specified time frame or the funds would be taken away; “Use it or lose it.” That meant there was a need for fast turnaround on projects with limited time to rethink or re-plan. This also meant that the duplication of previous layouts to include standard classrooms was thought to be a good strategy (D1; D2). Additional pressure to retain the default classroom setting also came from the limited seasonal time to build during winter and summer breaks (G3).
Cost as a factor.

The study of Acker and Miller (2005), found costs to build the two types of classrooms were equal for the most part, as some items and services were more expensive while others were less expensive and in the end costs were very similar. Analysis of data concerning cost as a factor was divided into two topics; one was funding to supply flexible furniture, and the other the cost of classroom maintenance.

It was discovered that the amount of funding for new tools for the general-use classroom was less than funding given for purpose-built classroom (Gov1). Providing minimal funds for general-use classrooms was supported by the attitude of college administrators. The Design and Education Specialist interviewees explained that colleges felt the general-use classrooms were considered fill-in space and as such received funding for upgrades only when absolutely necessary (DSGN; EDS). This fact reinforced the importance and funding given to purpose-built classroom projects (DEAL). The Education Specialist explained what drove colleges to spend on purpose-built and not on general-use classroom space was new programs, and with new programs came new needs that looked better than the old ones.

The Director interviewee in College Blue (D2) said the explanation given to them by Facilities Planning for why change was not happening was that the cost of the existing standard general-use classrooms was less expensive than newer flexible classrooms. Furthermore, there was very little effort needed to provide standard general-use classrooms. Facilities Planning told them, “Just push the ‘default’ button” and implementation of inflexible general-use classrooms was faster. If they selected something new, implementation was very slow (D2). Participants commented there was no reason that might drive the momentum needed to change, only the desire to continue with the same (D1; D2; R2; R3).
The Manufacturer/Dealer interviewee commented that there was a tendency for colleges to purchase the same standard inflexible furniture for new and existing replacement. However, when they deviated to build new classrooms, which they admitted was not often, they tended to purchase limited quantities of expensive items and they mimicked one another by purchasing the same things. For example at the time of this study all three colleges were purchasing the same table with an electronic marking board (DEAL).

As for a difference in cost between flexible and inflexible classrooms, the Facilities Planner at College Green said the cost of providing inflexible classrooms was the same as the cost to provide flexible classrooms. “When purchasing learning tools, we will pay more for one thing and less for another. We look for efficiencies in spending limited funds and not in sacrificing productivity that good space will provide” (G2). Administrators at College Blue commented that although flexible furniture was cost-neutral to purchase the process of deciding what to purchase and procurement was too much trouble and bother (B2; B1).

The cost of custodial services was identified as a factor as flexible general-use classrooms were perceived to cost more to maintain therefore making inflexible classrooms more desirable. The Government interviewee (Gov2) commented that flexible classrooms took more time to maintain than inflexible classrooms. The reason given was flexible classroom furniture was, “all over the place and required repositioning by the custodians” and that costs money. The Director interviewee at college Blue (D2) commented custodial services had trouble maintaining flexible spaces and therefore charged more to realign flexible furniture.

To verify the cost of cleaning, an external consultant in college custodial services was contacted. The independent investigator’s response was yes, custodial companies did charge more to clean spaces with flexible furniture and less to clean spaces with fixed inflexible
furniture. The reason was custodians were instructed by the college to make sure all furniture was reconfigured into row-and-column configuration at the end of the day. Inflexible classrooms had furniture that was almost unmovable. However, flexible furniture was on wheels and easily moved around by students leaving furniture out of alignment and messy looking.

Custodial staff was instructed to re-order and organize flexible classrooms into rows at the end of the day and this took extra time that they charged back to the colleges (Personal communication; Custodial Consultant, email, May 31, 2013). Ironically, this study discovered the cost of cleaning could be reduced if the colleges allowed the flexible classroom furniture to be messy. Nonetheless, the difference in custodial costs associated with classrooms appeared to be a factor in choosing between space types.

**Mechanization as a factor.**

The literature review identified factors that influenced the choice of classroom type including the historic resistance to mechanization, and the resistance to new physical surroundings (Gillett, 1966; Jukes and McCain, 2003, 2007). Similar factors emerged from the discussion with interviewees about the Node chair manufactured by Steelcase, as depicted in the Visual Aid in model #2 (Figure 2, page 14). The purpose of including it in the graphic drawing of a flexible classroom was to show a good example of an active classroom with movable furniture tools. Unknown to this researcher at the time of the development of this study, this piece of equipment had undergone limited trials at each of the three study colleges (R1; B1; G1). When used as a discussion piece in interview sessions it was noticed that the Node chair evoked varying responses. College Green participants commented they were planning to use the chair for new classrooms (G1). College Red participants said they had used the Node chair in two classrooms but had no feedback about its usefulness (R2). Interviewees at College Blue said they
would never use the chair again because it failed to accommodate obese, tall or left-handed users (B1; B2; D2). This criticism, voiced by College Blue participants who presented the most negative opinion of this flexible tool, required more exploration.

To assess the merit of the Node chair, a search of public internet web sites looking for general information, endorsements, awards, judgment about the chair was made and it was discovered that the Node’s popularity outweighed the criticisms. For instance, the chair had earned three awards for design excellence (IDEO, 2010; Steelcase, 2013). Furthermore, the Node chair was built to accept a range of small to large students (Steelcase, 2014). Analysis of the data revealed that College Blue used this piece of flexible seating as an example of flexibility tools gone wrong and to further their desire to retain the inflexible general-use classroom as a standard. I say this because of similar statements made by the interviewees at College Blue who commented that although some teachers liked the Node chairs’ flexibility, they witnessed that obese students could not fit into the chair. They commented further that familiar standard and traditional school furniture fit everyone and for that reason they would not use the Node chair. They discussed cost, effort and ergonomic fit as problems (D2; B1; B2).

Cost and effort.

Interviewees at College Blue commented that deviations from the standard inflexible classroom required too much coordination and frustration in order to determine what endorsers wanted (D2; B2; B3). It was said that even though the chair was cost-neutral to purchase it was considered too much trouble to get because it deviated from the standard desks and chairs and also required access to another vendor (B2; B1). The Director interviewee at College Blue (D2) explained that regardless of cost: “Just push the default button. Implementation is fast. There is no inertia to change, only the want to continue with the same.”
Ergonomic fit.

The Director interviewee at College Blue (D2) pointed out what happened when they trialed the Node; “Students can’t get into this seat and they cannot make this tablet piece work. This [the MAX stacker a familiar standard school chair] is great for 300 pounds, but this [Node chair] this, I have seen…… and it isn’t pretty.” The interviewee (B1) said; “I saw it [non fit] with my own eyes and cannot explain why there were so many obese students in this class.”

It is possible there might have been a large number of students who did not fit the Node chair. It is also possible administrators did not want to make the effort to change. It is also possible the decision made by administrators to reject the Node chair built a case for their resistance to mechanization and new physical surroundings as described by researchers (Gillett, 1966; Jukes and McCain, 2003, 2007).

Technology.

Another discovery was that there was an understanding among interviewees that learner-centered classrooms could not be flexible without the introduction of newer forms of technology. Best practice standards noted general-use classrooms on college campuses needed to reflect informal flexible places to meet and share ideas but these spaces could not happen without technology (Barrett, Zhang, Moffat, & Kobbacy, 2013; Britnell et al., 2012; Kim & McNair, 2009; Lopez et al., 2009; Neill & Etheridge, 2008). Technology was only one component of general-use spaces. The other component was the adaptation of flexible tools to include seats, work surfaces and vertical displays (Steelcase, 2012).

Administrators in this study were concerned with technology in general-use classrooms. They stated that computerization beyond what was already their standard, added cost without benefit. To that end technological upgrades within inflexible general-use classrooms were to be
kept to a minimum. Three discoveries were made. The first found administrators thought academics did not want new technology. The second was academics were fatigued by new and to some degree the old technology and the third was, administrators thought technology was just a toy misused by students.

The V.P. Academic at College Red said that criteria and processes to build new classrooms were similar to refreshing existing classroom spaces. Decisions about classroom types were determined by what the academics wanted and that was to maintain the current classroom standard with minimal technology (R1). The Facilities Planner in College Green agreed (G2). The Facilities Planner in College Blue (B2) commented that procurement of technology for flexible classrooms resulted in a huge increase in cost, as opposed to repeating the inflexible classroom model that had always been used. Interviewees in Colleges Red and Blue commented technology was an expensive trend that was out-dated quickly so why bother (B2; R3).

The Facilities Planner at College Blue was concerned the introduction of new flexible classrooms with their need for new technology required the added expense of training users if the spaces were going to be effective. The interviewee also explained there was a concern that teachers were already suffering from technology fatigue and for this reason this interviewee was pushing College Blue to continue their standard classroom design with minimal technology (B2).

The perception of the Facilities Management interviewee at College Red was that technology used by students was just a toy without learning benefit and students were only using computers, “to play with. They are using them only as social communication tools” (R3). For those reasons administrators said college-supplied computers in common college spaces on campus were going to be removed (D2; B1; B2; G2; R1). The removal of computers and desks
from common areas would have two results. One was the vacated space would be a welcome benefit in that administrators could use the space for other purposes including more general-use classrooms. The other was the loss of available technology resulting in student reliance on their own equipment. I questioned why administrators were eager to remove technology access in common space for students. Multiple daytime site visits to the three study colleges in March and April (when school was still in session) provided an entirely different view of these common spaces from that of the administrators. Based on what was observed, there appeared to be a need as every desk was occupied and every computer was being used.

Consultation with an expert (a non-participant in this study) who was a manager working in the Information Technology department at a large urban college was needed to clarify the discrepancy between the comments made by the interviewees and the observations. The consultant said that research conducted by their technology department indicated in 2013, 56.4% of the student population had access to a computer at home that could be used for course work. Of these, 32% of the student population owned a laptop. But 11.2% of the student population commented they were completely dependent on the computers supplied by their college (Personal communication; Technology Consultant, email, May 3, 2013). Another consideration was students may be able to afford computer hardware, but software costs were prohibitive. In addition, some college software was set up in a special way that could not easily be replicated by students on their own computers. Furthermore, not all students wanted to (or were able to) carry a laptop to campus or take it from class to class (Personal communication; Technology Consultant, email, May 3, 2013).

The Facilities Planning and Facilities Manager interviewees at Colleges Red and Blue commented the removal of these spaces and computers was a cost and space saving measure and
therefore a benefit to the college as the space would be decommissioned and possibly returned to classrooms (R2; R3; B2; B3). However, this investigation discovered that these measures would not benefit students who were dependent on the technology the colleges provided. Nonetheless it appeared it was classrooms, and not common computer areas that serviced the student population, which produced revenue and relieved the need for space on campuses.

The need for space.

Exploration revealed the urban colleges in this study needed classroom space to expand. Increased student access would generate revenue gained by turning common spaces into classrooms (G1; B1; D1; DSGN; EDS). Because common spaces were not scheduled student spaces, they did not generate enrolment numbers that were the basis of the funding formula. The V.P. Academic said; “Urban colleges are in desperate need for space,” (R1). Considering the administrative preference for purpose-built classrooms there was a need to make up the difference with general-use classrooms that would provide maximum utilization of space for funding purposes. V.P. Academic in College Blue commented that, “Maximum use has increased because we have a policy of access into programs and we need maximum use of space as well as efficient space to provide for students, otherwise we do not get paid” (B1). The drive for funding was internal to the institution but originated from Government Ministry policy, which provided external pressure by offering funding for following through with access initiatives. It was driven by physical resources to include the number of bums in seats as well as by Finance administrators who gathered college data (the number of students) from their internal programs. The V.P Academic and the Facilities Planner at College Red explained funding was considered barely adequate as long as the colleges were growing and receiving the funds they felt they needed. Colleges did not want to lose revenue by losing students; as was the case with many
rural colleges whose funding was shrinking because of the reduction in enrolment at their colleges (R1; R2). Participants commented government did not care what kind of space was utilized as long as it increased student capacity and demonstrated responsibility (EDS; Gov1; Gov2).

**Space and eLearning.**

Another factor identified from data concerned the college participants’ view that eLearning or hybrid delivery of education would benefit the colleges and would ease the pressure on brick and mortar general-use classrooms. The strategy made sense to them for two reasons. First, it would allow greater student access without student presence on campuses and it would increase funding, which was mutually beneficial for the government and for the colleges (Clark et al., 2009). Second, administrators thought the mass increase of online students would not impact campuses but would in fact redirect students away from the brick and mortar toward cyber space eLearning (D2; B2; PR; R1; R2; R3). The V.P. Academic at College Blue suggested that online hybrid delivery of courses would allow space efficiency and teaching flexibility, giving their collage the opportunity to teach classes for six weeks off campus and six weeks on campus. Administrators explained eLearning and the strategies proposed made sense because the colleges were planning to bring in eLearning. Consequently they did not see the need to change the existing classroom configuration (EDS; DEAL; DSGN; Gov1). As well, colleges were not going to change their standard for general-use education spaces as classrooms were considered a brick and mortar concern that was disconnected from eLearning and the technology that came with it (R2; B2; G3).
Footprint assessment.

While conducting interviews it was discovered that administrators were under the impression that flexible classrooms needed more space in that they had to be larger than inflexible spaces. The Education Specialist explained inflexible classrooms use 20 ft.² per station per student. “That includes all the circulation around the station. It includes the front area where the professor is as well as the actual chair and table [for the student]. If you have six hundred square feet of classroom space divided by 20 ft.² that equals 30 students.” The interviewee continued to explain that for more flexible active learning environments the rule of thumb was a higher square footage number but the exact measure was dependant on who you were talking to. Nonetheless more space was needed for a flexible classroom (EDS). The Designer explained;

A lot fewer [students] fit into the flexible standard classrooms. The selection of the inflexible classroom - I supposes it’s a matter of practicality. The inflexible classroom model follows a model developed by the people who maintain and build out these spaces and the responsibility is with the Facilities Department. They probably want to keep the stock of the same kind of furniture and they want to keep furniture that works…….What we do know is that there are fewer students that fit into flexible general-use classrooms.

(DSGN)

However, the Manufacturer/Dealer and the V.P. Academic at College Green did not agree. For example, at College Green they were looking at creating flexible classrooms that maximized space by reducing the size of internal tools (G1; G2).

As an interior designer I questioned whether the calculated footprint for an inflexible classroom (with a standard desk, chair and circulation percentage) was smaller than that calculated for flexible classrooms based on the tools needed (such as a seat, a horizontal work
A source of confusing information appeared to come from the draft of the COFSI Report that was a criterion for determining the footprint per workstation (G1). An analysis of the findings of the COFSI Report was conducted and discovered the following interesting information.

The COFSI Report calculated 20 square feet per person for a standard inflexible general-use footprint and this research discovered that this number was a very old footprint assessment of inflexible classroom sizes. Drawings of classrooms confirmed these old calculations. They were given at a meeting by an expert in education space (Personal communication; College Space Consultant, Jan.2013). Additional confirmation of footprint size came from two sources; this researcher’s assessment of archival photos from the 1960’s (Figures 8 and 9, pages 39, 40) and measurements of desks and chairs in inflexible classrooms at College Red. These sources confirmed the 20 square foot per person for a standard inflexible general-use footprint figure to be accurate.

According to Steelcase (2010) utilizing today’s efficiently designed technology, students require less work surface. The following are two calculations conducted by this researcher, based on the utilization of flexible mobile furniture. The first calculation was based on a 25% smaller work surface that produced a footprint calculation of 17.5 square feet per student. The second calculation was based on a footprint using the Node chair (Steelcase 2012) with seat and attached work surface. The footprint calculation that was factored by this researcher was 13.13 square feet per student. Both were smaller than the 20 square feet per student for the traditional classroom.

Based on this researcher’s calculations, the footprint of the inflexible general-use classroom was larger than that of at least two other options available for flexible general-use classrooms. A concern with this calculation was that it assumed design and teaching
generalizations since the amount of traditional work surface space is dependent upon the subject being taught. Nonetheless it can be said the footprints of the two types of classrooms (flexible and inflexible) are at least comparable. That said, footprint size should not be a factor when determining the type of general-use classrooms. However, the erroneous perception the flexible classroom requires a larger footprint, may well have influenced administrative decisions in favour of the traditional, inflexible classroom which was thought to be smaller.

**Research question #2: What are the policies, processes and procedures considered by administrators when determining a classroom model?**

The participants were asked specific questions from the interview guides (Appendices E, F G) as they related to Research Question two. The responses disclosed factors in areas that were traditional as well as more recent events. These included the government and the college perspectives regarding policies, processes and procedures, funding adequacy and an example of a current event, Infrastructure Ontario (Ontario Infrastructure and Lands Corporation Act, 2011). Surprisingly, they also included examples of bullying experiences and repercussions.

**History.**

The government interviewees explained historic events that established policy, processes and procedures influencing education space. Factors emerged from these interviewees that showed the inflexible classroom had been the standard used in high schools in the 1960’s and the format was duplicated in the colleges. Jukes and McCain (2006) suggested the current popularity of this space might be due to habit.

**Colleges patterned after high schools.**

The Government interviewee (Gov2) explained colleges were built as glorified high schools; it was how they were set up. In the 1960’s the government had standardized college
design with their own staff of architects who did everything. While some buildings were new, many colleges in urban areas located in southern Ontario were once old repurposed buildings. At that time there was a broader public sector procurement policy for furniture and equipment that melded with purchases made with high schools. That was why colleges today have inflexible classrooms accommodating thirty, in row-and-column format using the same old scheduling methodology.

*Government civil servants.*

The government informants (Gov1 and Gov2) who provided their etic views stated that over time the government systematically cut civil servant in-house staff whose job it was to give advice and feedback concerning the build out of college campuses. Divesting responsibility by reducing staff was a strategy used by the government to get the colleges to *grow up* and become autonomous (Gov2).

The Government (Gov1) participant explained the role of the government was to dole out funds and to ensure they were spent responsibly. The job of civil servants was to find ways to support government goals; to maintain accountability that included looking for inconsistency, and to create consistency even if it meant stretching the real facts about things (Gov2; EDS). It was not the job of the government to provide or to direct funds to classrooms or for furniture (Gov2). However, funding for other projects to include purpose-built spaces and technology was available (Gov.1).

Clark et al., (2009) explain in 1986 the government began the practice of giving funds based on the size of the institution. SuperBuild was a means for colleges to obtain funds based on the size of the college and the amount was determined by the number of students enrolled full time (FTE) at a time specified by the government in a semester. The Ministry of Training,
Colleges and Universities (MTCU) funding amount per student in 2007-8 for a post-secondary certificate and diploma program was $5,000.00 grant per FTE student (p. 91). The Government interviewee said it was up to the college to spend the funds responsibly by means of accountability (Gov1). Hook (2002) commented that autonomy over some building decisions (architect, contractor selection and building design), was given to the colleges. However, tight government control by civil servants was replaced with accountability over funds provided in that “colleges are held to rigid and comprehensive controls over their financial and legal affairs, real estate dealings and entrepreneurial activity” (p.3). The role of the civil servant was to assess and review reports and to ensure that the colleges were accountable and not to determine classroom types (Gov2). Thus government had nothing directly to do with administrative decisions concerning inflexible general-use classrooms.

**Current policies, processes and procedures.**

The government did not have the policy in place or the ability to make changes to the initial standard inflexible classrooms. The policy was to leave things as they were because there was too much involved to turn things around. The Government (Gov2) participant explained current government policies, procedures, and processes, and their relationship with education institutions were the amalgamation of a large number of issues; priorities, personalities, funding and everything else that made it hard to change course easily (Gov2). The Director in College Red described change and decision-making within large institutions, “We are like a large ship and steering that ship takes time” (D1). It was the opinion of the Government interviewees that policies, processes, and procedures, which were in use, were simple to follow. They were transparent and they had stood the test of time. In their opinion higher education institutions understood what was expected of them and how they were to spend their funds. Further, they
said Colleges knew and understood government rules, and they understood that government policies were consistent (Gov1; Gov2).

*The government perspective on spending.*

College administrative interviewees who provided their emic views commented that in their opinion the government only wanted to know how funds were spent and not on what. The Government interviewee agreed and explained; “They [colleges] recognize the connection between student development and physical space and so they’ve made it a priority and have diverted … diverted may not be the right word but they have committed operating funds specifically to deal with their renewal needs and a plan for a way not waiting for government.”(G1) It was the obligation of the colleges to determine how to spend their funds. Historically, that is pre-1998, government took full responsibility for construction, but policies, processes and procedures changed and government would not take that on now (G2). Further, the Government interviewee felt that the college perspective was interesting because;

I know that it’s easy to blame college problems on policies, processes, and procedures. Some are problems with government underfunding or government interference or lack of dedicated funding but I question those statements that blame government because the government does not interfere. (G1)

*The government perspective on funding.*

One government interviewee explained the capital funding model had three active “pots” of money and all were administered through the government (G1). One pot was earmarked for equipment funds. The second pot was for facility renewal, and the third pot was capital funds for major projects. Capital funding was project-specific but according to the interviewee, the institutions defined how it was spent. However all spending had to meet the government
eligibility criteria. The government interviewee said; “Colleges have had a high level of autonomy concerning their decisions and concerning how they chose to spend their money which was provided by capital funding, operating funding and even tuition.” This interviewee continued and said, “There’s tons of flexibility. It’s a matter of their prioritization” (Gov1). This Government interviewee explained the essential focus of providing government funds was to build new spaces that were intended to provide space for bums in seats, generating capital funding income for the colleges. However, through the years colleges had become more autonomous and thus it was the colleges and not the government that determined (to some degree) where and how to spend funds. The interviewee commented, “College campuses are like goldfish bowls where the goldfish grow to the size of their container absorbing as much funding as they can get” (Gov1). From the view of this participant college funding had increased over the years but regardless of how much was given, colleges had a ferocious appetite, were ever increasing in size and were always in need of more. This situation was due to the location of the institution (rural versus urban), the competitive impact of enrolment-based funding and because of increased demand from students for greater access (Clarke et al., 2006).

The Government interviewees commented it was definitely finding funding that drove college decision-making concerning the allocation of funds. If funding was available for purpose-built space then that was what the college would build (Gov1; Gov2). That said, no one in the colleges or the government was going to change classroom models because college administrators did not want to change their mind about what they already had in place. There was no reason or motivation to do so. The decision to retain this classroom model was due to the lack of desire to spend scarce resources to make a change from inflexible to flexible classroom space. The interviewees added that spending on technology was different from spending on
classroom model changes as technology was what the government gave funds for. The Government interviewee (Gov1) said, “They [colleges] must create and maintain quality learning environments that reflect current academic delivery practices and the standards of industry particularly for equipment and technology.”

*The government perspective on funding adequacy.*

Policies driving funding adequacy were based on decisions made at the college level. The Government interviewee (Gov1) commented, “Aside from them [colleges] being eligible [for funding, other] costs [are] defined [by them] at a high level such as equipment [for example equipment] that needs to be academic equipment. What kind of academic equipment, is completely up to the institution to determine”. The Government interviewee (Gov1) clarified by adding, there was government funding provided for all sorts of college initiatives but it was unclear how the funds were distributed and how decisions to spend the funds were made by the colleges. In the opinion of the government interviewees, public accounts indicated colleges had money (Gov2). Government interviewee (Gov1) commented, “I argue, though, that if you were to look at their business plans and their annual reports and map that against their financial statements, you would know why they have extra money. They have capital plans, right? Did they have the extra money because the capital plans are driving the savings or is it that they foresee the extra money [that they can get from the governments] and therefore it [new initiatives] allows them to create their new capital plans?” (Gov1)

One of the government interviewees in this study appeared to be very disturbed by my question concerning inadequate funding grounded in the findings of Lang (2005) and said; “Regarding your comment concerning underfunding - underfunding is a college culture thing - new administrators do not understand what underfunding is.” The interviewee added that over
the last ten years, colleges had learned to manage with less and were familiar with making up the difference with self-funding. The interviewee later made the comment; “It’s true, that the government has reduced the amount of funding that they provide to colleges for deferred maintenance. We are in the second year of reduction of funding. We have reduced the amount by 8.7 percent but colleges have been self-funding.” The example of self-funding given was selling off land (Gov1). The issue of funding came up again in the interview when the interviewee added;

  Regarding the matter of underfunding - I have a hard time accepting that. While I appreciate their fiscal challenges, I contend that when you grow accustomed with operating with a certain amount of funds, then you are apt to become less efficient. Time will tell. (Gov1)

A further comment stating that colleges should appreciate government funding came from the Government interviewee (Gov2) who said; “Considering where the colleges have been, they get a lot more money now. They need to benchmark themselves against what high schools get to see how fortunate they are.”

  Government view of funding classrooms.

  The two government interviewees providing their etic views made similar comments that government did not foresee funding policy change for classroom upgrades and new tables and chairs (Gov.1; Gov2). However, there was government funding for technology but accepted it was a college decision. They added it would be far more interesting to look at what policies and practices were used at the institutional level relating to the acquisition of equipment and planning for the classrooms (Gov1; Gov2). Funding provided for general-use classrooms was all about multi-level politics. This issue concerned how the institutions prioritized their funds. That is,
colleges funded the projects they felt needed the greatest attention and they prioritized the expenditure of funds on whatever they felt they needed (Gov1).

The Government interviewees summarized their position on funding for classrooms saying they did not foresee funds earmarked for general-use classrooms because government and politicians did not care about classrooms. The development of classrooms was not the role of government. Further, they would only care if classrooms made good news stories (Gov2). However, there might be funding available in the future if colleges were able to demonstrate to government that flexible classrooms and not inflexible classrooms worked better from a financial point of view (Gov1).

**College policy on funding.**

College interviews provided their internal (emic) views. Participants from College Red reported it was their policy to build inflexible general-use classrooms (R1; R2; B2). Although College Green did not appear to have a policy on classrooms, they were persuaded to maintain 103 inflexible general-use classrooms because that is what their academic faculty wanted (G2). Funding came from the maximum utilization of space and schedule largely achieved by the inflexible general-use classroom (R1; B1; G1). An unwritten college policy was a willingness to spend funds on technology and purpose-built spaces with pressure from government to oblige (Gov2; R2; B2). Government interviewee (Gov2) commented:

There was a preference to spend funds on ….equipment versus buying things like computers and lathes or whatever else that are perhaps considered more of a technical necessity, rather than tables or chairs. Generally speaking I don’t believe classroom furniture is thought to be an eligible expense unless it is part of a major renovation of that particular space. For example, you can’t go out and buy a whole new amount of furniture
for a space just because you want to stick it in a classroom. That is, the college cannot do that using government funds. (Gov2)

The Director interviewee in College Red commented, “There had been a new approach to education where over the last number of years there has been a major shift both in terms of technology as an external driver and around funding. The internal drivers focused on; “We want to differentiate ourselves around being one of the best post-secondary institutions in education and learning.” The interviewee added that driving the desire to be the best was an opportunity for funding for purpose-built space housing innovative technology (D1).

Colleges maximize space to obtain maximum enrolment based funding by using the inflexible general-use classroom. However, not discussed was their policy to over subscribe and thus overload inflexible classrooms. The example of overloading inflexible general-use space was of particular interest to this researcher as on several occasions, classrooms I taught in were oversubscribed with students at the beginning of the semester. The result was there were not sufficient furniture (desks and chairs) in the classrooms forcing some students to sit on the floor. After some weeks space became available only because of student attrition. According to the Education Specialist (EDS) the problem began with the understanding that government policy for funding was based on how many students were enrolled. Oversubscription at the beginning of the semester accomplished two goals. One was to obtain additional funding for more students considering the inevitable withdrawal of some students. The other was to support the government goal by demonstrating how much more enrolment their investment in infrastructure had allowed (EDS). The need to oversubscription at the beginning of the semester was motivated by the understanding there would be attrition. This meant colleges were motivated to oversubscribe so they had enough students in-house on government census day (around mid- November) for
maximum funding. They explained that the beginning of the semester was the critical time. The interviewee at College Blue (B1) said, “We exceed the building code and have a shortage of seating in the rooms resulting in the need for students to grab chairs from other rooms in order to allow for the overload of students”.

However successful this policy appeared, it placed pressure on the college campuses and at times compromised the fire code. Two administrators admitted to exceeding the fire code twice in the semester by over enrolling beyond maximum load (B1; D2). Exceeding the fire code limits might have resulted in a fine or at the extreme could have compromised the ability of the college to evacuate students and faculty in the event of a fire. Interviewees were aware of the fine but did not appear to understand other consequences.

*College-government relations.*

Interviewees commented that government was about the performance of colleges that worked within a monopsony framework. Although government interviewees providing their views (etic) might have been happy with the arrangement (Gov2), statements from college interviewees providing their internal views (emic) indicated they were not. Comments concerning the negative treatment of colleges demonstrated discontent. For example the interviewee in College Green commented that the government treated colleges like children (G1). The interviewee in college Blue commented on why governments punish colleges and said, “That is because we are bad recalcitrant children who *absent the stick* are not going deliver because we are irresponsible” (B1). The V.P. Academic in College Red pointed out problems with the Ministry that were, “… the individuals that work there, almost none have ever actually worked in the college, their policies are unclear and their directions are unclear, they don’t
follow them [policies] even when they have them and they change them [policies] on a regular basis” (R1).

Interviewees contributed insight into government-college relations but asked not to include their identities when using the material. They explained there would be repercussions if their identities were disclosed. In total there were twelve interviewees (75%) who contributed to the following discourse. The data were important in two ways; they disclosed how the colleges felt about the government and demonstrated that decisions concerning changing classrooms were not as important as dealing with the difficulties presented to them by the government. An example was dealing with very demanding accountability. These interviewees whose identity will remain protected by not coding their comments explained government was not in tune with the needs of the colleges. One interviewee commented that Ministry staff had never worked in a University or College and because of that, higher education institutes (HEIs) were disadvantaged by people who did not know what colleges did. They added the government did not understand the institutions. Another said that Ministers liked to mandate change and then walk away from the initiatives leaving the colleges with the fallout. The specific initiative referred to was the Infrastructure Ontario and Lands Corporation Act (2011) discussed later in this chapter. Another interviewee commented that government was out of touch with what happened at colleges and that they had no understanding of the college system. They continued by adding the situation had deteriorated to the point where the colleges felt they could not depend on government for financial support. Furthermore, the government was entirely focused on funding allocation, accountability methods and to that end they were risk-adverse putting in measures that worked against college interests. Another suggested the government was not focused on student interests. Another interviewee added the government was the colleges’ “disaster.” The disaster the
government had created was the disaster the colleges were working with. Colleges were in place to create future workers and, as such, needed the appropriate investment so that they could do their jobs properly but investment was not forthcoming from the government. The Government acted only as a paymaster and when funds were reduced, for whatever reason, the institutions suffered, leaving no funds for change of any kind.

*College perspective on funding adequacy.*

While the government interviewees providing their etic views felt funding was adequate, the colleges providing their emic views felt differently. One interviewee at College Green commented that Government policies and other funding schemes were draining funds from colleges (G1). Interviewees at College Red said funding was inconsistent and was cyclical as there were huge fluctuations between funding programs (D1; R1). Inconsistent funding had its impact on the development of flexible classrooms. The Director interviewee at College Blue commented:

> Policies have consequences on space….We understand the government funding policy of . . . *Use it or lose it.* That means fast turnaround on projects. It means limited time to rethink, and it means the duplication of previous layouts to include standard classrooms. (D2)

College interviewees commented that funding was poor. It had been reduced severely over the years. G1 at College Green said that, “In 1979 the government contribution was 93%, and today it is 40%. Student and other ancillary fees pay 60%, which makes up the difference.” Another interviewee agreed commenting, “We experience chronically low funding” (B2). The result of poor funding was spaces in dire need of renovation, said G2. The reason given for the shortage was because of government policies to underfund thereby draining funds from students
and the institution that was helpless to do anything (G1). The interviewee at College Blue said that funding shortages had an impact in that funds had to be redirected away from classrooms. We have no funding to make change to classrooms possible. Colleges are in fact starved for money. Capital funds needed for maintenance or for their buildings comes first. There is money for new construction, which affords government officials a photo-op, but there is next to nothing for infrastructure. Who cares if old buildings and their infrastructure are falling apart? There is no glamour in fixing roofs. (B2)

**College programming for classroom design.**

Questions in the scripted guide asked interviewees who identified programming needs for classrooms. It asked who made primary decisions concerning classrooms and probed to discover the processes used to evaluate classrooms.

A participant from College Green explained they had several planning departments and committees making decisions about classroom design and their college decision-making was collaborative and inclusive. The example given was as they moved forward their college would be using the flexible Node chair in newly constructed classroom spaces (G1). Additional comments from administrators were that decisions about classrooms were based on committee recommendations as well as the finances available. Financial decisions were ultimately in the control of the finance department. Utilization targets were adhered to and monitored by the Registrar (G2; G3). That said, programming for classrooms was the standard inflexible classroom, “Unless something comes up, we implement our standard for I.T. and for furniture,” said G3.

Participants from Colleges Red and Blue indicated committees were not really organized and instead they conducted limited interviews with faculty about classroom issues and concerns
in order to gain information concerning how classrooms should be configured. Funding was tight and Finance and Registration departments were in firm control of all programming and ultimately made decisions regarding the campus. Standards for general-use classrooms were solidly in place so that maximum utilization of space and room schedules was ensured (R1; R2; B2).

The interviewee at College Blue said; “Facilities Planning makes the decisions and they do not consult very much. That is, they grudging agree to supply a few flexible spaces, but the bulk of classrooms are standard model #1” (B1).

As for who had the expertise to determine what the general classroom looked like and who gave direction, the college participants indicated that the Designer (DSGN) was the expert but the designer said the colleges were experts. The Design interviewee commented they handed off responsibility to the colleges’ Facilities departments;

Design of classroom space is entirely with Facilities Planning departments. The type of work taken on by this consultant is purpose-built environments only. When classrooms are requested the work involves interior finishes only. Interior fitments for classrooms are by someone else. Decisions about general-use classrooms are made by the time I get there. They [colleges] like to retain the standards they have in place. (DSGN)

The Facilities departments at Colleges Red and Blue commented the responsibility for determining the programming of classrooms was with the designer. Interviewees said Facilities Planning departments did not have the required expertise. They were dependent on the input of the external design expert (B1; B2; R2). The interviewees at College Green commented they were willing to work outside of the expertise of designers and were willing to experiment with
options through collaboration with their academic partners (G2). They commented their academic partners preferred inflexible classrooms and if requested, that is what they got (G3).

*The use of punishment and reward.*

An operational methodology used to ensure consistency of procedures and alignment with policy was the use of rewards and punishment. The Manufacturer/Dealer interviewee gave an example of punishment that they said happened approximately two years prior to their interview for this study. College Red froze the Manufacturer/Dealer out of bids for product for a year because of an alleged infraction (DEAL). The interviewee at College Red commented that HEIs worked with a monopsony system and generally speaking said that they regularly punished or rewarded faculty for maintaining alignment with the institution (R1).

The government interviewee described how civil servants were expected to conform when they did not agree with new government policies. It was explained they should suppress their own opinions. A good civil servant should work with two philosophies. The first was to find the argument supporting the answer to any ministry question. In other words, regardless of the issues, the civil servant should accommodate the elected government by finding supportive solutions to any questions asked. The second was the civil servant should realize there was no such thing as a right or wrong answer, and the only thing that mattered was the veiled view of consistency within government. Further, one did not want to draw negative publicity to an elected government, said Gov2.

The two Government interviewees made similar comments explaining that sometimes government did not like the politics of the colleges. Examples of how they dealt with that were instances where college presidents tried to advocate for policies opposed to the Government or to the Minister. The consequence was the college was punished in some way. An example given
was paperwork requiring high-level signatures could be held up on the Ministers desk for months (G1). However the opposite was possible. For example, rewards happened when the college was in a favourable municipality and when the college cooperated with the Ministry (Gov1; Gov2). Rewards for who received funds were based on who was in power and who voted for whom. It was explained, “Ministers like to write big cheques and take credit . . . They also like sanitized reports that indicate that funds have been spent correctly.” As well Ministers liked an event that was a photo opportunity (Gov2). The factors that I identified suggested that it was better to maintain the status quo at colleges concerning inflexible classrooms, as the grant of monies for education space did not provide a photo opportunity for Ministers. Furthermore, remaining aligned, not changing inflexible classrooms that had been “bounding along for thirty years” was perhaps a better option than looking in a new direction for space (EDS).

**Dealing with a government initiative.**

A noteworthy example of a government initiative that was happening at the time of this study and was discussed by interviewees (n = 12; 75%) was Infrastructure Ontario. The formal title was the Ontario Infrastructure and Lands Corporation Act, 2011 but interviewees used Infrastructure Ontario or I.O. Participants expressed their concern with the policies, processes, and procedures legislated for use by the colleges for the build-out of campus environments that exceed a certain dollar amount (Ontario Infrastructure and Lands Corporation Act, 2011).

According to college interviewees, there were problems with Infrastructure Ontario. One was its swift implementation and immediate impact on large construction plans in progress. This information was received negatively by the colleges for two reasons. First it did not allow college input, consideration or their priorities. The second was that building practices involving past policies, procedures and processes that had been followed by colleges were swiftly eclipsed
by this new legislation. To that end a new way of providing campus space was back in the 
control of the government (R1; G1; G2; B2).

The effect of I.O. was not isolated to college constriction projects. Data concerning I.O. 
revealed two factors that influenced the decision-making priorities of administrators to choose 
one type of classroom over another. One was that the relationship with the government was 
problematic in that disturbances caused by I.O. were distractions absorbing college 
administrators’ attention. The other was the Government was not simply in place to oversee 
funds in a minimal sense, but in the opinion of the colleges, they were in place to direct 
initiatives by using a very heavy hand.

The methods of direction in place for the implementation of Infrastructure Ontario (I.O.) 
legislation were not entirely new. Researchers, Cooke (2007), Hook (2002) and Lang (2005, 
2008) discussed monopsony, accountability and funding as contributors to the historically 
problematic relationship between colleges and government. What was a new finding was the 
force of the impact of this initiative on colleges and in turn it revealed two very different 
perspectives. The government interviewees’ (etic) view trivialize the impact of I.O. legislation 
on colleges while the colleges gave an opposite (emic) view of the impact of I.O.

A consultant (who was not an interviewee) with experience in government relations at the 
college level, was asked to comment on what the interviewees had said. To begin, I needed to 
gauge whether the interviewees had prior input into this legislation or opportunities to influence 
the outcome of Infrastructure Ontario (2011). The response was, no, colleges were not consulted 
and Infrastructure Ontario was broadcast to the colleges by email without any prior warning 
concerning the content. The expert explained this was the climate in which administrators within 
colleges made decisions about space and the expert confirmed there was a problematic climate of
uncertainty and mistrust between government and colleges (Personal communication; Government Consultant, May, 31, 2013).

*The impact of Infrastructure Ontario.*

To fully grasp the impact of Infrastructure Ontario, I needed to know what processes preceded this legislation. The following was confirmed by the external consultant (Personal communication; Government Consultant, May, 31, 2013). The colleges impacted by I.O. had initially been given an allotted amount for expansion of their campuses. They began their process following their usual methodology and some colleges got quite far into planning and shaping of new buildings. When I.O. was introduced the original dollar amount was drastically reduced. Colleges were told that 30% of the announced value of the original project would revert back to Infrastructure Ontario. For example a college that was granted $60 million for the construction of a campus building that would include the build out of general-use classrooms and other spaces would have 30% returned to Infrastructure Ontario to mitigate risk that might be experienced as a result of construction problems. Risk might include a sudden increase in the cost of steel. Based on what the expert consultant had to say, colleges would not get money back even if the project went through without using the funds in reserve. The consultant explained, not only was I.O. taking a handsome chunk of money away from college projects and making major decisions on behalf of the colleges, it was also increasing the amount of college accountability, so much so that colleges were forced to increase their staff in order to support Infrastructure Ontario’s more complex processes (2011).

Through interviews it was discovered that two participants, one from College Red and the other from College Blue were moving from their current positions in their facilities departments to work exclusively on the management of I.O. New staff was replacing their positions and this
was an added expense for the colleges. A further complication from I.O. was that projects that had taken a relatively short time to complete in the past would take much longer because they required more accountability.

This researcher cannot comment on whether I.O. would in the long run turn out better or worse for colleges as the outcome of the legislation had not had time to run its course by the time this study would be completed. However, two points can be commented on. One point was college interviewees were eager to discuss the impact of this legislation on their college but at the same time they insisted on anonymity as it was felt disclosure of their identities could result in punishment of some kind. One interviewee who cannot be identified said, “….my strong comments about I.O. will identify me” and warned me not to be specific. To that end and as an added measure of protection this information was not coded. The second point was a concern about this initiative as fair and appropriate. The government and colleges had opposite views.

The government perspective on their role.

The two Government interviewees made similar remarks confirming the details about I.O. but they added their (etic) perspectives (Gov1; Gov2). They said managing campus space was the role of the institutions. However there was legislation in place for colleges that they had to follow in that colleges as public institutions were required to respond to the public need. The Government interviewees noted that colleges had been fighting for autonomy. From their perspectives there had been a long history of government intervention into college affairs but this ended when colleges were given more freedom to make decisions over the control of their own funds. Further, from their perspectives the role of the government changed accomplished by increasing accountability to ensure space was appropriate and funds were being spent properly.
They explained, overseeing college accountability was the stewardship function of the government (Gov1; Gov2).

The Government interviewees as well as the V.P. Academic in College Blue explained a component of Infrastructure Ontario (I.O.) was stewardship as the government wanted to know how funds were being spent on large building projects. It was the government’s obligation. The Government interviewee explained that historically, that is pre-1998, government would take on full responsibility for college construction projects, but with time policies, processes and procedures had changed to a point where government would not take on this responsibility. They (the government) no longer had the in-house staff and therefore allowed colleges to make certain decisions (Gov2). For example colleges were allowed to tender their projects and select the design, contractors and see the project through to completion as long as they remained within their funding allowances. The Ontario Ministry of Training Colleges and Universities (MTCU) controlled the purse but the College Board of Governors was accountable for the outcome.

The government perspective on I.O.

Regarding the introduction of I.O. government interviewees giving their (etic) views explained this was new legislation (Gov1; Gov2; B1). Government was trying to reduce its fiscal challenges by introducing legislation that would mitigate and manage risk. For example, if the cost of steel went up substantially that would add additional cost not only for the steel but would also impact other costs and expenditures down the line. The Government interviewees went on to explain there were growing pains with I.O. because it was a new venture. They added the government was struggling with how to manage this new aspect of its business (Gov1; Gov2.). Consequently colleges were also experiencing difficulties caused by this new policy. The Government interviewees continued by adding they were not sure I.O. could be called a new
policy, other than it was a different approach to the oversight and management of capital projects. The interviewees commented they could see how colleges would perceive this process as problematic and it might influence administrators’ decisions about the built environment. For example, in some cases, there were ongoing debates regarding the number of floors the proposed college buildings could afford. They admitted that until now they had never had those debates on their side of the house. Previously, the colleges would commit to build a number of square feet at an agreed upon cost and the government was in agreement as long as the colleges were able to deliver within the scope. The old processes were prescriptive from the government end. Approvals were given quickly and the project was able to proceed with a lot of flexibility given to the institution. That ended with the implementation of Infrastructure Ontario (Gov1).

The Government interviewee (Gov1) explained that in their opinion, “it was interesting” for colleges to easily blame their problems on government policies, processes, and procedures. Problems where blame was cast were with government underfunding or government interference or the lack of dedicated funding. The Government participant questioned past statements from colleges that blamed government for issues because from the perspective of this participant government did not interfere with colleges. As for I.O., the colleges would “get over it” (Gov1).

*The college perspective on government.*

The perspective of nine of the 11 college key informants (82%) who contributed their (emic) views to this conversation said government was out of touch with what happened at colleges. The government had no understanding of the college system and I.O. demonstrated to colleges they could not depend on government for financial support. They commented the government acted as a paymaster and when funds were reduced, for whatever reason, the institution suffered, leaving no funds for change of any kind.
The college perspective on I.O.

College interviewees giving their (emic) views explained that at the time of this study they had large projects planned but could not go forward with the entire project because Infrastructure Ontario legislation took away a significant chunk of funds that supported the overall concept encompassing the needs of the college. Consequently as institutions they had to compromise and reduce their expectation. Infrastructure Ontario dictated what colleges could and could not do by decreasing the amount they could spend and that reduced the size of their projects.

The college interviewees explained the government implementation of Infrastructure Ontario had efficiency in its favour. It was clear the government had maximum utilization of space capacity as their agenda, with other much-needed support space sacrificed to pay for their level of comfort to attain minimal risk. Infrastructure Ontario was costing students and colleges dearly. Its implementation did not benefit anyone other than the government according to college interviewees. They acknowledged that there had been other policies that were problematic and highly politicised, but this one was the worst. The policy had no value and it was working against society’s interests. Although it might mitigate risk due to over-runs, the process introduced by the government increased time to do a project and increased accountability procedures significantly, as it required more internal human resources to manage. The impression of college participants was the government was completely unaware of the damage done by their bureaucratic processes.

Summary of the impact of I.O.

The three colleges in this study were in the process of adding large buildings to their campuses when I.O. was announced unexpectedly. College Green was planning to create flexible classrooms regardless of the impact of Infrastructure Ontario on its budget. However, Colleges
Blue and Red indicated that standard, inflexible general-use classrooms would be built in their new premises. College Blue explained the implementation of Infrastructure Ontario had impacted their decision to experiment with flexible classrooms. They chose standard general-use classrooms and made other significant cuts because the funds for their buildings had been so drastically reduced. The cutback of funds reinforced two reasons for colleges to retain the inflexible standard classroom model. The first, colleges Red and Blue believed general-use classrooms were inexpensive and required less effort to produce. Second, the colleges believed standard inflexible classrooms had a smaller footprint than their flexible counterparts. With this in mind, they foresaw the need to maximize the utilization of space in the traditional way by providing inflexible general-use classrooms in proposed new buildings.

**Research question #3: What are the other factors that influence administrators when determining the general-use classroom space?**

It was found that interviewees were very willing to express their views and conversations were not restricted by cutting them off. Each interviewee was given the opportunity to cover anything that might have been missed. This addition was accomplished at the end of the script when it was asked, “Is there anything that you would care to comment on or add?” These were the discoveries that emerged from those conversations.

*Anonymity and speaking out.*

The discussion about classrooms for this researcher, a designer and educator, was always on an academic and intellectual level. The impression was that questions about lack of change to classroom design, despite new pedagogy that supports change, would also be answered on an academic and intellectual level with a free exchange of ideas. However this researcher’s attitude changed when interviewees were asked to participate in the study. Many interviewees agreed to
participate only if they were not identified (n = 12; 75%). Reasons given were they felt that they could not speak frankly if they were identified as there was a perceived risk to them of professional and personal repercussions if some of their honest viewpoints were printed (G1; R1; EDS). The interviewee in College Blue refused to have the interview audio recorded and heavily redacted the transcript (B2). The Manufacturer/Dealer interviewee offered an example of blackballing and bullying by a Facilities Planning department because of minor performance infractions. As punishment the participant was not included in any tenders for one year (DEAL). The Government interviewees giving their (etic) views commented that Ministers punish or reward colleges because of the politics of the institution. They gave an example; when college Presidents are in dispute with the Minister they would be punished in some way. An example of when colleges were rewarded was when they were in a favourable municipality or political riding or when the College cooperated with the Ministry (Gov1; Gov2).

The policy of short-term allocation of government funding, “use it or lose it” was a form of manipulation used by government. Interviewees giving their (emic) views explained that for colleges it meant pressure with limited time to think and for classrooms it resulted in the duplication of the inflexible classroom layout (B2; D2). The policy of the continuance of the standard inflexible classroom was also a form of manipulation used to ensure alignment with the agenda of the institution and was used internally by Colleges Red and Blue to maintain their general-use classrooms. Requests made by anyone, faculty or other administrators to change this policy were met with rejection (R1; R2; B2).

I observed that participants in this study described coercive, heavy-handed and negative behaviours (bullying, blackballing) to achieve an agenda were effective tools used to ensure a desired outcome. Analysis of data and the research of others revealed, real or not, the possibility
of punishment was used effectively to keep others in line and to ensure the status quo of the institution was maintained (Jukes & McCain, 2007). A factor identified as part of the administrative decision-making process was the use of behavioural tactics as punishment for non-alignment. Alignment concerned decisions about funding first and not about what would benefit students. Colleges demonstrated an internal perspective of looking out at the government, to remain aligned with their policies in order to gain funds. The Government perspective was to ensure college decisions were aligned with fiscal outcomes. The result was collaboration and cooperation were not encouraged and new ideas with potential were not expressed. Maintaining the status quo was the focus. It was discovered the use of coercion was constant and negative behaviours ensured the desired outcome that funding remained the essential priority for administrators.

**What was not said.**

When reviewing the research discoveries of other studies it was noticed that it was as important to reflect on what was *not* said as it was to reflect on what was said (Lopes, 2008). Reflection about the findings from this study revealed factors that influenced administrators of space to choose one type of general-use classroom over the other. However, pockets of information concerning what was not said emerged. The first was the reference to students as a core focus. The second was the reference to research concerning best practices, brain function and connecting education space with work environments.

*Students as a core focus.*

Four interviewees (25%) addressed students as their core focus (G1; G2; G3, D1). The interviewees in College Green spoke for their students and their conversations aligned with their College’s Strategic Plan, which had a “student–first focus” (G1; G2; G3). An example, G2 said:
We would like to do what our students want because they are stakeholders. They are financial contributors, just like the government, and that makes students stakeholders. We respect where the funding is coming from and know that the money is partially from the government and partially coming from our students. This makes our students stakeholders with a voice.

The Director interviewee in College Red also spoke for students reflecting the view of their Strategic Plan by frequently interjecting that at their college they, “act on behalf of students. We teach all new academics to be learner-centered” (D1). However, analysis of interviewee statements from this college identified this person as the lone voice actively supporting the student focus at the college. The interviewees at College Blue did not mention alignment with their Strategic Plan or a student focus.

Possible reasons for administrators not discussing students might be explained by examining what they thought their roles were. For example, the interviewees at College Blue saw their jobs as providers of space only. They explained their job was not to look into how or for whom the space was to be provided. They saw their job as simply the developers of space based on student numbers only (B2; B3). Three interviewees at College Red commented similarly explaining the when classrooms were asked for what was understood was the application of the standard, and that was the only programming possibility. The academic community directed the standard in place. The administrators assess the number of students only (R2; R3; B1). Further explanations were that outside groups drove classroom design and not the students. Three interviewees commented with similar remarks explaining academics might have a say in the design of classroom space but the kind of classroom space was driven by the Registration and Finance departments (R3; B1; B3). A further explanation for not discussing the role of students
was that the participating administrators did not understand classrooms. Many reflected on their own education experience, and not on student need. The interviewee at College Blue commented the standard general classroom was good enough. Others were educated in that setting and it didn’t kill them (B2).

Another possible reason given for administrators not discussing students was given by the Manufacturer/Dealer interviewee whose experience with colleges suggested they did not value education. That in general, there was very little understanding about what classrooms were about and how students fit (DEAL). The Education Specialist added colleges did not understand the role classrooms played in the delivery of the mission of the institution and colleges did not have task forces assigned to investigate classroom change (EDS).

*Understanding research.*

Another possible reason given for not discussing students was that administrators did not understand the importance of student focused research on students. The two Director interviewees commented similarly about conducting research. They said colleges did not formally test the environments to find out if things worked because they thought there was no need to do so. They asked their staff and received feedback through anecdotes (D1; D2). They also relied on trial and error. “If something does not look like it is working we try something else next time” (D2). “We do collect data on learner skills or on environmental changes,” said the Director interviewee at College Red (D1). As pointed out by Scott-Webber (2012a), the absence of the awareness of current research might be a possible explanation given for not discussing topics that included educational environments, understandings of neuroscience, pedagogy, and supportive physical space. The absence of an awareness of current work in education spaces for students was also a possible reason given for not commenting, in that administrators were not
aware that environments reflected who students were and that appropriate space mattered to them (Farr, 2012).

A possible reason given by administrators for excluding the importance of students in their discussions was they were unaware of research advancements. This lack of knowledge might have resulted in factors that focused on the prioritization of funding and not on students. The interviewee at College Red explained that space was designed for maximum utilization and maximum efficiency in order to capture funds (R1). Not discussed was who classrooms were designed for, only inflexible general-use classrooms remained standard at colleges. Academic faculty who wanted to retain the teacher-centred model drove this approach. The policy of standard inflexible classrooms was also driven by the scheduling system that could not accommodate flexible space. Interviewees explained that Facilities Planning, Registration and the Finance departments work toward general-use classrooms maximizing the utilization of classrooms scheduled to exceed 80% or more - 85% of available time (R1; R2; B2).

**Strategic Plan and Site Walk Through**

Analysis of the subject colleges Strategic Plans, as well as the outcome of the site walk through addressed the importance of the general-use classroom as well as policies processes and procedures. The research of Jukes and McCain (2003, 2007) and Scott-Webber (2012a, 2012b) discussed a gap in understanding that change from inflexible to flexible space was about the connection between space and best practices. In chapter two comments were shared on the possibility of a gap in understanding between learning theories calling for flexibility and their connection with the need for flexible space. It was Holland who connected the influence of the environment with characteristics and behaviours of college students. His research bridged the
gap to create a greater understanding that environments matter (Holland as cited by Smart et al., 2006).

**Analysis of site walkthrough.**

Analysis of a walkthrough at three colleges discovered a gap between what was observed in the built environment and what was said in the Strategic Plans. The Strategic Plans stated that the colleges were student-focused and inclusive of innovative teaching environments. However it was discovered the classrooms used did not reflect the Strategic Plans. Non alignment disclosed a gap between the Strategic Plan statements, the site conditions and the institutional desire to be learner-centered.

I observed that almost all campus classrooms in Colleges Green, Red and Blue were inflexible. Regardless of whether the classrooms were general-use or purpose-built, furniture and equipment were configured in the row-and-column pattern. There were a few exceptions. College Green had two flexible classrooms designed for the purpose of training teachers in the use of learner-centered teaching methods. The campus also had two classrooms for teaching students that were flexible. All other classrooms, and I was told by Facilities planning there were 103 on campus, and purpose-built spaces were inflexible (G2). I observed three flexible classrooms in College Red. All other teaching environments including purpose-built spaces were inflexible. At College Blue I observed two flexible classrooms. All other classrooms including purpose-built spaces and general-use classrooms were inflexible row-and-column configuration.

The COFSI Report (2012) quantified the amount of space devoted to classrooms in 24 Ontario colleges as A1 and purpose-built space as A2. The report quantified the approximate existing square footage of teaching inventory space devoted to classrooms, A1 + A2 but did not quantify the number of classrooms the approximate square footage number represented. The
report identified each of the 24 colleges separately. The site walk through conducted by this researcher at the three subject colleges observed an existing inventory of COFSI reported classroom space A1 to approximate 593,790 square feet of inflexible general-use classrooms and approximately 725,835 square feet of inflexible purpose -built space. Using the square footage classroom totals and the footprint estimates from the COFSI report, I estimated that I observed approximately 36,000 square feet of flexible teaching space or approximately 0.027 percent of flexible teaching space that had been converted to teacher centered education environments in all three of the subject colleges.

**Analysis of Strategic Plans.**

Analysis of the Strategic Plans from three colleges discovered that each institution stated they were student-focused and inclusive of innovative teaching environments but it was discovered that not all statements were in alignment. Non-alignment disclosed a gap between the Strategic Plan and the institutional desire to be learner-centered.

College Green appeared to be philosophically aligned with what was said in their Strategic Plan document as they were a learner-centered institution striving to work toward learner-centered education environments. For example, the V.P. Academic in College Green (G1) said, “We are an academic institution and the academic plan should be driving the institutional Strategic Plan. It needs to all be in sync. It is not to say we are powerful out there and whimsical but as an academic institution pedagogy, curriculum and (what a surprise) students need to drive everything that we do.” The V.P. Academic also added they were trying to change their classroom types to align with their Strategic Plan and said, “Classrooms may never completely go away but this model #2 [the flexible model] is on the way to something else. I do not know what something else looks like yet but there will be something else.” The gap discovered at
College Green was their desire to be learner-centered in that they were trying to be learner-centered but admitted to having 103 inflexible general-use classrooms on their main campus that they were not changing.

The statements emerging from Colleges Red and Blue were not aligned with their learner-centered Strategic Plans and at these institutions they did not plan to change their inflexible classrooms. The Facilities Planner at College Red (R2) said; “When you say classroom that’s when you say ‘the standard’…that is the light bulb goes on.” The facilities Planner at College Blue said they used the COFSI Report standard for most of their classrooms and that was not going to change. Their Strategic Plans said they were learner-centered, but this research discovered their hold on inflexible general-use classrooms demonstrated a gap in understanding between administrative practices and best practices in that interviewees did not appear to understand that space to support learner-centered teaching was important for best practices to flourish. What appeared to be lost on these administrators was that learner-centered teaching and flexible classrooms were as Holland said synonymous (Smart et al., 2006). What was also lost was colleges were publicly announcing in their Strategic Plans they were learner-centered when they were not; they did not merge the physical inflexible campus with best practice teaching (Lackney & Jacobs, 2002; Smart, Feldman & Corinna, 2006; Bickford & Wright, 2006). The gap in understanding demonstrated non-alignment with the institutions’ Strategic Plans and was possibly a factor explaining why the classroom remained unchallenged and unchanged, in that this was the way it had always been done (Jukes & McCain, 2007).

**Summary of Chapter Four**

The guidelines used for scripts (Appendix A), with questions posed to interviewees concerning who made decisions about general-use space (Appendices E, F and G) revealed,
Facilities Planning departments were influenced by Registration and Finance Departments who were invested in ensuring the use of general-use space was maximized for funding purposes. Colleges Red and Blue safeguarded the general-use space with policies ensuring that the model remained in a standard format. College Green went along with the perceived pressures of their academic faculty to continue the use of the inflexible general-use classroom.

Factors that ensured classrooms remained untouched and in their standard format included the priorities of academics who administrators said preferred to educate in teacher-centred classrooms and did not like messy flexible environments. Additional factors cited considered that changing to flexible classrooms required larger spaces and greater costs to produce. Facilities Planners also said it took too much effort to change from the default standard to something else. Change to flexible classrooms required additional technology, which interviewees claimed was not wanted by academics within their institutions. These factors were repeated to ensure general-use classrooms remained in their current inflexible state and as such used as the vehicle for the maximization of funding for the institution.

It was discovered that answers to questions posed to interviewee’s illuminated perspectives. That is, sixteen participants in this study explained what they felt were important considerations that influenced their decision and determined factors that they used to defend their priorities to choose one type of general-use classroom over another. In some instances interviewees used factors with debatable legitimacy to ensure the continued use of inflexible classrooms. Administrators in College Green spoke highly about the new model types, were looking to introduce change but struggled with factors working against it. Interviewees in Colleges Red and Blue spoke negatively and trivialized the need to change their standard classrooms. The Education Specialist provided an emic perspective stating that some college
administrators would say almost anything to support the continued use of standard general-use education space (EDS). These statements trivialized the importance of following best practices and downplayed the need for supportive learner-centered space. One such statement arguing for continued use of the inflexible standard general-use classrooms was; ‘If it ain’t broke don’t fix it’. There were other comments made by interviewees following a similar theme that trivialized the importance of changing from inflexible to flexible classrooms that support students. They were; don’t bother me; change requires effort and a reason to care about learning institutions.

The site visits confirmed standard inflexible general-use classrooms were the most used model types on all three subject campuses. However, there were a small number of other classroom types introduced into campuses.

Contradictions within interviewee statements were not uncommon. The contradictions were used as reasons not to change from inflexible to flexible classrooms. A contradiction used to keep standard classrooms came from Facilities planning departments at colleges Red and Blue (B2; R3). Interviewees said their academic facility do not like messy teaching spaces and it was difficult to keep furniture aligned even when it was standard inflexible classroom tools. Participants said they received frequent complaints from faculty about furniture that had been moved within inflexible classrooms. The contradiction in their statements was, standard furniture in these classrooms was almost immovable. The site visit verified that, in fact, other than chairs, not too much internal furniture movement in classrooms was possible. The tables were heavy, and tightly packed into the rooms. Nonetheless administrative interviewees said complaints from faculty were frequent. Standard teaching rooms were always in need of realignment. Change to flexible furniture would increase complaints (R3; D2).
The analysis of data discovered that the priority to maximize institutional funding was one of the main factors in the retention of the inflexible general-use classroom. That said there were several factors that emerged from the analysis of data that supported two funding priorities. One funding priority concerned how to acquire funds and the other was the determination of how funds were used. Context, interviewee statements, the analysis of Strategic Plans and the site reviews of campus space identified the importance of funding to education institutions. Factors were used by administrators in their decision-making processes to choose standard inflexible classrooms. Chapter five will close the loop by answering each of the research questions based on the data collected. It will draw conclusions from the findings presented in this chapter and will identify implications for policy/practice, further research and theory.
Chapter 5: Conclusion and Implications

This study posed questions to the administrators of college campus spaces to discover the decision-making processes they used when choosing between inflexible and flexible general-use classroom space. There were two reasons for the inquiry. The first was to find factors used in their decision making processes, and the second was to discover how factors influenced teaching space on college campuses. This study grew from findings in scholarly literature concerning best practice evidence demonstrating flexible classrooms positively affect student success. However it was the inflexible general-use classrooms that remained a major component of college campuses (Bickford & Wright, 2006; Lackney & Jacobs, 2002).

Lessons to be learned from this study were, (1) they would help other educators find the momentum needed to change the inflexible classroom into an education space that might easily allow for a broader spectrum of teaching methods, (2) that change reflecting learner-centered education models would benefit students who might attain greater success, and (3) that administrators, responsible for the selection of tools (seats, horizontal and vertical work surfaces), would recognize that a change to classrooms was not just about mobility and flexibility but also a concern for the provision of appropriate learner-centered education environments.

The early hypothesis was that there were many factors influencing priorities in decision making. The study found however, that this hypothesis did not accurately reflect reality. Rather, there were several factors with one priority and that was to preserve the familiar inflexible model of classroom configuration to maximize the “bums in seats” associated with operational funding for the colleges. This priority was based on the participants’ perception that inflexible classrooms provided the greatest student capacity.
This study investigated factors from four sources: (1) document analysis, (2) site visit with verification of campus space, (3) face-to-face interviews with participants who provided emic and etic perspectives, and (4) input from outside consultants who provided verification of some points raised during the interviews.

This chapter discusses the factors identified in chapter four and examines how administrators used these to influence their decision to choose between one type of campus space over another. Factors were examined critically and were guided by the research of others who questioned why change to learner-centered classrooms had not, and perhaps cannot, happen even though this change would most likely benefit students. The chapter discusses implications for policy and practice, future research and theory.

**Closing the Research Loop**

There were three research questions in this study. The following discusses closing the research loop.

**Research question one.**

Research question one sought to discover the perceived importance of the general-use classroom. Administrators interviewed in this study explained the importance of the classroom was fiscal.

**Maximization.**

The study found the inflexible general-use classroom was strategically important because this space enabled the maximum number of students by means of the bums in seats method that was the basis of the government’s enrolment-driven funding formula. Colleges needed funding to operate. Although there were several avenues for funding, none appeared more important to administrative interviewees than the seating capacity accommodated by the inflexible general-
use classroom. Administrators explained their strategy was to over-fill the inflexible general-use classrooms at the beginning of the semester thus maximizing the number of registered students in attendance at the beginning of each semester. The strategy was adopted to mitigate the potential revenue lost through attrition. The priority identified by participating administrators was that the inflexible general-use classroom configuration facilitated the maximization of student capacity leading directly to maximum funding. For this reason the inflexible general-use classroom continued to be the preferred default classroom setting.

The inflexible general-use classroom was preferred by administrators because of its ability to maximize the utilization of campus space and was used to its capacity when supporting the broadest number of scheduling hours per day. Its ability to be used in this way was the benchmark for government’s enrolment driven funding. The inflexible teacher-centered space was equally important as a place for learning in that the general-use classroom, as compared with purpose-built classrooms, was a considered a center for teaching the greatest number of students. For example, any general-use classroom might have a capacity for 30 students but the purpose-built classroom designed for aircraft demonstrations might only hold six students.

The inflexible general-use classroom was misunderstood as a potentially important space for multiple teaching models. It was discovered that the functional capability of this space was underestimated by administrators as they did not appear to recognize the inflexible space supported old teacher-centered pedagogies and inhibited newer learner-centered methods. What they appeared to understand was that maintaining the inflexible classroom was their priority and a variety of factors ensured it remained in its standard inflexible form. Touching or tampering with it was perceived to be problematic. Several factors were discovered that maintained the continuance of the inflexible general-use classroom as an important and valued campus space.
**Historic roots.**

This inflexible classroom type had deep historic/traditional roots that satisfied the funding priority. It had been used as a standard for years to ensure the maximum amount of funding for colleges. Standardization of classroom design was perceived by administrators to be a benefit in that as a default setting it required the least amount of time and effort to reproduce.

**Organizational silos.**

Data provided by interviewees found college administration to be isolated and divided into silos of expertise. Interviewees admitted that as contained compartments they read or conducted very little research concerning classroom design and current changes in educating students. These factors isolated the participants, shut out new possibilities and perpetuated thinking the inflexible general-use classroom was the only means of maximizing funding. Analysis of data gathered from face-to-face interviews found participants were not well informed about space as applied to learning methodology.

**Technology.**

Participants had many views about technology. Conversations ranged from the application of futuristic computer caves to the elimination of computer labs. Their view of technology demonstrated a gap in understanding that machines and software were a separate entity from classrooms that could be learner-centered with or without devices.

For the most part interviewees wanted to keep the inflexible general-use classroom as standard as possible. That included maintaining minimal technology as they said academics did not want to learn how to operate new software and new equipment in new surroundings. Analysis discovered that academics said they were fatigued. The wanted familiar and easy standardization, the default setting and this contributed to the importance of the inflexible
general-use classroom. Thus factors contributing to maintaining the classroom standard was its familiarity and consistency. It was a space the college and faculty could rely on. Academics knew how to use the technology and Facilities Planning departments had a formula ready for the implementation of the inflexible classroom.

*Generational bias.*

Generational bias expressed by participants identified the inflexible classroom as a familiar space and as such it was given importance. Comments emerged that when they were students, participants learned in inflexible space and it didn’t hurt them (B2). The Facilities Manager from College Red made this comment about inflexible general-use classrooms, “so if it ain’t broke don’t fix it” (R3). Once again, factors maintaining the classroom standard was its familiarity and consistency. Academics knew what to expect and Facilities Planning departments had a formula for implementation.

*Standardization preferences.*

Participants from Colleges Red and Blue were adamant they would not change classroom standards as internal circumstances dictated the exclusive use of the inflexible general-use classroom model. Participants from College Red said they had a written policy of inflexible general-use classrooms and those from College Blue implied they had a policy which they followed. Participants from College Green said they were working toward change to flexible classrooms but at the time of this study they had not found the momentum needed to begin the process due to the influence of other departments, of faculty, and the negative impact of governance distractions, in particular the distraction caused by Infrastructure Ontario (I.O.).
Cost and footprint.

Interviewees commented cost and footprint were reasons why the inflexible classrooms had to remain. However it was discovered these arguments were not completely legitimate as their rationale was based on misinformation. Two examples used by interviewees were, the perception that the cost to provide flexible classrooms and the space needed (i.e., size of footprint) for flexible classrooms were greater than those of inflexible classrooms. Participants used this misinformation to reinforce the choice of inflexible classrooms to achieve maximum enrolment and subsequent funding. While there was nothing wrong with aggressively seeking funding by maximizing classroom capacity, the approach was misguided as the quality of the space given the best practices literature, was sacrificed due to inaccurate perceptions concerning cost and footprint.

Value of space.

The inflexible general-use classroom was important as this space type was a means of obtaining funding. However the space was undervalued and taken for granted by key informants as well as external expert interviewees. Blanchette’s article equating space with power in education institutions underscores this point of view (2012). Undervaluing the classroom space in spite of its importance as a means of funding was a factor used in maintaining its inflexible configuration.

Findings revealed the three subject colleges viewed their institutional space from a political perspective and equated space with power and prestige. The most powerfully viewed and prestigious kinds of spaces were the purpose-built classrooms ostensibly owned by the individual programs who considered their institutional space from a functional perspective, determined by the program for which it was designed. However, the general-use classroom was
seen as a multi-ownership space used by all programs within the institution. This space was less important from the college (emic) view of academic faculty but very important from the view of operational departments. Operational ownership was the responsibility of Registration and Finance departments but was policed by Facilities Planning. These departments in Colleges Red and Blue formed a powerful, influential bloc controlling internal functionality of space to achieve optimum funding. They determined the general-use classroom was to be generic, inflexible and therefore suitable for all programs. The model that fit their “bill” was the inflexible default setting using fixed in place, standard tools.

College Green participants however, were less rigid. They considered the maximization of space, but also considered the option of flexibility in classrooms to accommodate multiple methods of pedagogy. Administrators at this college realized there were opportunities for change and pointed out what Scott-Webber described were necessary institutional characteristics to create innovation. They considered the possibility of institutional leadership working collaboratively with faculty members and educational designers who worked together for holistic advancements in innovative teaching space. Scott-Webber explained collaboration was needed, “Because each has a significant stake in shaping the educational landscape of the future. Once opportunities for change are recognized, then it takes real leadership, tenacity, and perseverance to move beyond our comfort levels” (Scott-Webber, 2012a, p. 5). Only one out of the three subject colleges in this study appeared to understand the possibility of reshaping their landscape. Although they had not broken from the implementation of the standard general-use classrooms they were considering the possibility as they were looking for ways to move in a different direction. The other colleges stated they would not move beyond the standard approach to
general-use classrooms because power blocs within the institution prioritized the direction. They were not moving out of their comfort zone. Change did not appear to be on the horizon.

**Strategic Plans and site visit confirmation.**

The importance of the inflexible versus the flexible general-use classroom emerged from data that resulted from comparing the Strategic Plans with an assessment of classroom types used on campuses. The Strategic Plans developed by Colleges Red, Blue and Green stated they were student-centered, but observations based on site visits of their campuses revealed physical spaces were not. It was observed that regardless of the age of the classroom, some classrooms were newly renovated and some were in need of renovation, the majority were inflexible general-use classrooms. Regardless of what their Strategic Plans said, conversations with participants in colleges upheld a standard policy of maintaining inflexible general-use classrooms. Funding was the priority, and factors were used to support the priority. The vehicle used to ensure maximum use of space and scheduling to obtain maximum funding was the inflexible general-use classroom. Change to flexible classrooms was not happening in part because of college internal policies.

Policies defining space should be made by decision-makers guided by the Strategic Plans of their institutions. The findings in this study were inconsistent with those of Blanchettes’ (2012) research. She said, for the most part decision-makers rely on the most influential instrument, the Strategic Plans to determine policies, processes and procedures starting with the protocol for requesting space. Campus should reflect the type of environment described in their Strategic Plan. Administrators determining space should be guided by this document. The processes start with requests flowing through a filtration process of prioritization, communication and, finally, into the implementation of space. Uses of space determine its function and appearance. Processes
to create appropriate space are reliant upon administrators whose decisions are ideally filtered through the institutions’ missions, visions and priorities (Blanchette, 2012). Although this was the prescribed method of decision-making, the institutions in this study hardly followed the path described by Blanchette. Their learner-centered Strategic Plans did not reflect what I observed on campus. Student-centered Strategic Plans should have been reflected in learner-centered flexible classrooms. Instead, what was observed were hundreds of teacher-centered inflexible general-use classrooms, the instrument used for teacher-centered learning.

Priorities at Colleges Red, Blue and Green differed from Strategic Plan mission, vision and value statements. Areas of non-alignment were discovered in their frequent references to student-centered learning as best practices inform us student-centered education includes flexible space (Bickford & Wright, 2006; Lackney & Jacobs, 2002). This study found the importance of the general-use classroom was overshadowed by governance, by power struggles and infighting. Two examples of these were the impact of Infrastructure Ontario on colleges and the discipline applied to space type within colleges by their Facilities Planning Departments. Also discovered was the importance of administrative comfort with the default setting of hierarchical row-and-column campus spaces. These factors brought attention to the gap between the colleges’ student-centered Strategic Plans and their inflexible, teacher-centered campus space.

Noted were the views identified by College Green’s participants who were slightly more in line with their student-centered Strategic Plan and Blanchettes’ (2012) research. Participants said they appreciated the importance of flexible general-use classrooms and indicated they were trying to change inflexible classrooms to align with their Strategic Plans.

It was clear that some institutions in this study had a public learner-centered face that differed from their teacher-centered internal classroom space. Their Strategic Plans were posted
on the internet and the public viewing the sites would expect campuses reflecting the stated mission, vision and values of the institutions. However, the findings in this study suggested, for the most part, administrators disregarded the directions of their Strategic Plans, did not recognize the importance of the flexible general-use classroom in promoting student learning and prioritized teacher-centered physical environments.

**Decision makers.**

Participants understood the fiscal benefit of the inflexible general-use classroom in maximizing enrolment and thus its importance to the institution, but did not understand the pedagogical need to change the inflexible to a flexible classroom.

Leaders within education institutions were the major decision-making authorities charged with recognising the importance of appropriately designed space on campus suited for the accommodation of its users. The delegated leaders made decisions about institutional concerns and the allocation of space, which was under the purview of executive-level administrators. This level of administration was comprised of individuals including the President, Vice President and top levels of Finance. They had final decision-making authority. But these authorities frequently delegate decision-making about space to a lower level of the administration, Facilities Planning and Management who they thought had expertise in education and design. The expectation of the role was they should have a high level of expertise and were capable of making decisions about regarding space management issues (Blanchette, 2012). This study found Facilities Planners and Managers were not as capable as one would expect; they lacked training and experience in either design or education and, in some instances, both. Furthermore, the Facilities Managers commonly delegated to Designers who also did not have either training or background sufficient to make informed decisions about the design of educational space. The end result was the
Strategic Plan mission of the institution was not always followed. Two of the three institutions within this study staunchly upheld the continued use of standard general-use classrooms which were not learner-centered. One institution discussed change, but hope for implementation was distant. However, the mission, vision and value statements in the colleges’ Strategic Plans clearly identified the institutions as learner-centered.

*About research.*

Participants indicated the primary importance of the inflexible classroom was a means of maximizing funding. Many admitted they did not conduct research or routinely read articles that would have illuminated the relative value of different types of space in achieving the desired educational outcomes.

While research about education space was scarce it was not impossible to find. Nonetheless, administrators admitted to reading very little about this issue. For example, at the time of this study all Ontario colleges had participated in the Colleges Ontario Facilities Standard (COFSI) report that was mainly concerned with gathering data about campus space. Reference to the COFSI report or other current research about classroom space hardly ever entered into the conversations. Blanchette (2012) commented on the importance of data-driven models and up-to-date accurate space inventories that were important to maintain an overall view of space on campuses. For the most part participants in charge of space in this study explained they did not feel the need to explore or conduct research to understand the evolution of campus space. Instead, they relied on anecdotes filtered and remanufactured into arguments to support the inflexible general-use classroom. The remanufactured information was then used in ways to reinforce their own biases against flexible classrooms. One example was that key informants and external experts said they did not want to change from inflexible standard general-use
classrooms because they assumed the required increased classroom size would compromise the maximum utilization of space and would reduce funding. Further, no research was conducted to determine the validity of this assumption.

A factor closely associated with the lack of research was how much college administrators knew about designing classroom spaces and teaching. Notably they were the ones charged with creating these spaces. However, the administrators in this study considered space solely based on a mathematical calculation maximizing bums in seats. The old method calculated space requirements by using historically out-dated square footage per student to formulate a classroom footprint and then it inserted a standardized quantity of furniture that fit. The result, comments Scott-Webber, was the inflexible classroom (2012a).

Participants with design and teaching experience should be charged with the task of executing classroom education space in a design-appropriate way. They should be in charge of appropriately changing space aligned with current research based on best practice methods that accommodate the educator and learner as well as administrators.

**Research question two.**

Question two sought to identify policies, processes and procedures determining the classroom model. It was found the inflexible classroom model used by the subject colleges was rooted in historic tradition and as such administrators had difficulties developing policies, processes and procedures that would change classroom environments. The traditional use of the row-and-column pattern was so deeply embedded that interviewees did not appear to realize it was a problem. All they seemed to know was the traditional general-use classrooms had to stay and they found persuasive arguments to preserve this familiar teaching space they thought was efficient enough to maximize space in order to maximize funding.
Inquiry into themes concerning governance asked what the policies, processes and procedures were considered by participants when determining a classroom model. These may have differed between government and college groups but their main objective was to form a linear operational purpose concerned with funding. Literature reviewed in chapter two indicated the basis was a structure of policies, processes and procedures that had negative effects on colleges. Hook (2002) found problems with governance due to excessive accountability, Cooke (2007) said the monopsony structure of governance was troublesome and Lang (2005, 2008) identified funding was problematic. All three were factors that influenced participant administrative decisions that in turn influenced the choice of classroom types.

**Why bad feelings?**

Colleges, in this study, harboured bad feelings concerning government policies, processes and procedures. They were negatively influenced by disruptive political factors. The result was a reduction in their effectiveness to attend to what they considered less important internal issues like changing classroom types.

An example of the troubled relationship between colleges and government was Infrastructure Ontario. Government interviewees explained how they governed colleges and colleges explained how damaging government governance was. The implementation of Infrastructure Ontario (I.O.) touched all areas of policy, process and procedure described by researchers Lang, Hook and Cook and confirmed the relationship between colleges in Ontario and government was problematic (Cooke, 2007; Hook, 2002; Lang, 2005, 2008).

Infrastructure Ontario was a crown corporation owned by the Province of Ontario. The Ontario Infrastructure and Lands Corporation Act was established in 2011. Its development was not inclusive of the colleges and this approach was troublesome. Its implementation had a
negative impact on the college space that included decisions made by key informants. For example, when asked how and when the colleges heard about the impact of I.O. on their developing construction projects, interviewees explained the colleges knew something was coming but were not pre-warned in any official way because colleges were not a part of the planning of I.O. Furthermore, the need to comply with Infrastructure Ontario was forwarded to them via email. There were no meetings to explain the legislation (Personal communication; Government Consultant, May 31, 2013). Further, there had not been opportunities to object to the legislation (G1). As well, interviewees willing to discuss I.O. insisted conversations must be kept anonymous, as they feared reprisals. Interviewees commented, in general, that government treated colleges like children who were not part of the decision-making processes. It was the monopsony governance structure used inappropriately that enabled legislative acts like I.O. and allowed them to be implemented in this manner (Cooke, 2007).

It can’t be argued that it was the monopsony governance structure that was the sole source of the problem as a monopsony was only a framework for conducting business. However, this study confirmed it was the colleges working within the monopsony framework that found the structure problematic. Individuals working for the government saw their role as parental and their job to distribute funds, and they in turn expected compliance and accountability. A dismissive comment made by one of the government interviewees concerning colleges and the implementation of I.O. was, “they will get used to it.” Conversely, a college participant explained from their perspective colleges were viewed by government as children and as such they complained their treatment was unacceptable.
The impact of I.O. on space.

College interviewees indicated they harboured resentment toward the government. The implementation of Infrastructure Ontario was only a recent example of the problematic relationship between the two. It was explained to me that Infrastructure Ontario was a bitter pill to swallow as colleges had major projects in the works when I.O. was delivered. The sudden introduction of this legislation meant projects were subject to drastic changes. Interviewees in colleges Red and Blue let me know that even if they could they would not introduce flexible classrooms into new projects under I.O. They opted for what they considered the cheaper, faster delivery of space by continuing inflexible standard classrooms. However, administrators in college Green, who were slightly more aligned with their Strategic Plan mission said, that in spite of the difficulties presented by I.O. they were going to use flexible classroom models because there was no increase in cost to provide flexible classrooms. This would be undertaken only in their new building projects as they recognized the commitment they had made in their Strategic Plan.

Government interviewees provided an outside (etic) perspective and trivialized the impact of I.O. by saying the colleges would get used to it in time and they were all just working out the kinks. Based on their statements, it appeared they were completely unaware of the resentment harbouried by the colleges. Government interviewees downplayed how the colleges felt or how I.O. would affect decisions including squashing any possible change to existing inflexible classrooms. The Education Specialist commented the government did not care how colleges felt. A Government interviewee commented that colleges would get over it.
Flexible space and policy; inter-college differences.

Findings of this study discovered colleges with two perspectives of governance; (1) how teaching space was perceived and (2) how space was managed. They appeared to function separately in that administration wanted to be seen as learner-centered institutions but then demonstrated policies that would not allow their campus space to reflect that want.

Policy, procedures and processes delivering one type of classroom were standard in two colleges but their desire was to be learner-centered. Not all colleges in this study were as fixated on the standard row-and-column approach to delivering inflexible general-use classroom space. College Green differed but only moderately. Although this college, like the other two, was focused on fiscal efficiency through the maximization of space and scheduling, this institution appeared to be genuinely interested in changing not just classrooms but all college space to flexible, shared student-centered learning environments. This investigation discovered the governance style at this college was collaborative and inclusive with an institutional goal to produce learner-centered space aligned with their Strategic Plan. They gave a clear message; their future focus was the improvement of the college for students. They were in the process of investigating how to maintain fiscal efficiency and were looking in a different direction as they were not interested in preserving the inflexible classroom as a standard. However, at the time of this study they were unclear about how it was to happen and were unable to create the momentum to make changes.

Study findings showed differences in how teaching space was perceived, managed and governed. Wanting is not enough. Action aligned with governance is essential to the outcome of classroom settings. Desire and governance cannot function separately. Administration must want to create learner-centered teaching institutions through focused governance.
Research question three.

Research question three looked for other factors influencing administrators when determining the type of general-use classroom space. One factor was reflected in the request for anonymity from interviewees as a function of the context in which they worked. Anonymity was symptomatic of other factors. For example, interviewees explained there was a need to demonstrate alignment with others in the institution or perhaps with government policies. Allowing members to freely express their views is healthy. However, this study discovered that failing to demonstrate alignment meant facing a reprisal of some kind.

Speaking out of line was problematic for interviewees. Anonymity was a required method of protection used against repercussions from others who used punishment as a tactic to gain agreement and to align with governance. There was an awareness of the request for anonymity at the beginning of the study and then again later when interviewees reconfirmed their need for anonymity especially when discussing issues related to government policies, processes and procedures.

The last scripted question in the interview guide was an open question posed to all interviewees for the purpose of generating discussions about topics that had not been addressed. It probed participants for additional factors that might influence administrators when determining the general-classroom space type. Analysis of data found research question three disclosed what interviewees had not discussed, avoided or had very little to talk about.

A student focus.

A surprising finding was that, for the most part participants in colleges Red and Blue did not have very much to say about their student focus. They explained they had a standardization policy in place for classroom implementation. It was the policy that appeared to minimize
discussions and overshadow any consideration for their students. Key informants from College Green expressed a real caring for students and explained they were student focused. Although they verbally demonstrated concern for their students they could not make changes to classrooms because they were distracted by government initiatives. Consequently they were disorganized and appeared to be unable to find a place to begin. Further, they did not appear to have the leadership to create the momentum needed to get going.

*The work environment.*

Interviewees did not discuss the importance of connecting the learning environment with the work environment and they did not comment on research concerning students and academics who wanted flexible space resembling today’s work place (Scott-Webber et al., 2013). They did not acknowledge business had changed. Education institutions have not kept up, particularly with respect to inflexible general-use classrooms, which resembled the compartmentalized offices from another era (Lasker, 2012). As noted earlier, rapid changes to office design began in the 1990’s. In those days clients began insisting on the removal of office partitions, which gave way to open environments allowing for ease of collaboration among workers with an emphasis on the flexibility of space and tools. Today environmental necessities also include access to daylight for employees, good internal light systems, high air quality, and appropriate aesthetics.

**Implications**

This study sought to find factors used by administrators in colleges to make decisions about teaching space. Not just any space, but why inflexible classroom space had not changed into flexible classroom spaces that are better suited for learner-centered methods of teaching (Neil & Etheridge, 2008; Kim & McNair, 2009; Lopez et al, 2009; Mandarino & Mattern, 2010). This chapter looked at factors within the boundaries of the research questions, it looked into
policies and processes and practices. The chapter continues by examining the implications of the influence of these multiple factors on colleges, government, faculty and students.

Colleges and best practices.

The policy of continuing the standard inflexible classroom was practiced by the colleges in this study. The continuance of the inflexible general-use classroom is not recommended, as this model is a relic from an old paradigm reliant upon the exclusive use of teaching by lecture (Jukes & McCain, 2007; Scott-Webber, 2012a). In spite of best practice in pedagogy, the inflexible general-use classroom remained constant within college campuses. Although many recent improvements to technology and pedagogy have occurred, this physical space and its internal tools have not changed and kept up with recent research.

This study considered it was the inflexible general-use space, and not the purpose-built space, that must be seen as the focus of a problem within our college campuses. It was discovered that participants who were administrators valued purpose-built space over classroom space. Also, administrators were at times confused about the type of space referenced in this study and would rather talk about purpose-built teaching space because they felt it reflected the individual program identities and as such deserved a higher profile. To them it was more enjoyable and more interesting to build purpose-built classrooms like specialty kitchens because they thought general-use classrooms were just spaces filled with furniture. Nonetheless, this study discovered the general-use classroom had an importance beyond adding funding to college coffers. Also discovered was that it was a space college leaders overlooked and undervalued. The transformation of the general-use classroom space has to be accompanied with analysis and research including multiple forms of measured outcomes to properly assess the impact of change. Change to this space includes two parts; first, meaningful measures of learning outcomes and
second, ongoing assessments to ensure the maximization of funding. Without real assessment and the leadership needed to create momentum, this learning environment will remain the same as it has for centuries.

The practice of providing space that matters.

Through the many steps of research development a deeper appreciation for the importance of education space in Higher Education Institutions (HEIs) was discovered. If space were viewed symbolically then it was the organizations’ culture that established their institutional priorities. This was a view not fully understood until the end of the study but was consistent with the literature. When viewed from a political perspective, space within institutions could be equated with power and prestige. When space was viewed from a functional perspective, the look, the function, and the feel could be determined by who owned it, who worked in it and how one learned in the space (Blanchette, 2012). Institutions should recognize that functional and operational space to suit educational practice should matter. However, this study found this was not always the case. Findings revealed the opposite was true in two of the three subject colleges. Colleges Red and Blue were not interested in changing their standard inflexible general-use classrooms because of issues concerning internal and external policies, procedures and processes. The focus of these two colleges was to deploy what they considered the most fiscally efficient model of row-and-column inflexible general-use classrooms. The decision to use the inflexible model ignored current best practice models in education. Scott-Webber agreed that at many institutions the focus on ensuring fiscal efficiency was about packing in as many students without consideration of education best practice. The question posed to educators by Scott-Webber was; “How many ‘bums’ in seats do you need?” and the response from colleges was the same, “Oh we have a template for that.” (2012a, p. 1). The template referred to packed-in
students without due consideration for best practices. It was the row-and-column standard template that maximized space and schedule use that required the least amount of effort to deploy, and in accordance with the perceptions of interviewees in this study, yielded maximum fiscal return.

**Policy and expertise.**

Policies defining space should be made by decision-makers who are able to demonstrate they have the educational and training backgrounds to make appropriate decisions about space for their institutions. These same participants who were college administrators bypassed the opportunity to develop policies and processes in their institutions for the development of better space. These institutions sidestepped alignment with the aims and goals of their Strategic Plans with little regard for the betterment of the students that attended their institutions.

**Practice and expertise.**

Support for change is an important consideration when contemplating an increase in classroom flexibility. This step would require a new strategy aimed at changing the inflexible to flexible classrooms as well as an end to using the default setting to satisfy classroom needs. The new strategy would include the practice of active inquiry thereby requiring more effort to produce results. It would also need designer/education experts at the administrative level who would focus on creating multi-functional spaces prioritizing the mobility of students within classroom spaces to facilitate quick and easy change from a static to an active configuration. To adequately accomplish the task, the designers/educators would need active learning tools allowing students to move freely within their classroom environments (Scott-Webber, 2012b). If thoughtfully considered, the designer could successfully achieve two goals; one would be to not compromise functionality while maintaining the maximum number of students in classroom
space, and the other would be to accommodate students and educators in spaces supporting best practices in pedagogy.

This research revealed interviewees were using old, out-dated furniture paradigm calculations to reinforce the continued use of the inflexible general-use classroom in two ways. First, they were convinced inflexible classrooms used less space than flexible classrooms and second, they thought purchasing tools used for inflexible classrooms was more efficient. The first misconception was the calculation used for inflexible classrooms was not questioned. The second was the footprint calculations for flexible classrooms were not entirely correct. This brought into question the knowledge of the interviewees who were college administrators. The large footprint calculations quoted by participants for the flexible classroom were a red flag indicating something might be wrong. The COFSI Report (E.C.S., 2012) space calculations reinforced the interviewees administrative perspective but this researcher’s calculations demonstrated efficiency of space could be achieved by using a smaller desk that was more suited for today’s environments or by using the Node (combination of chair and desk).

An additional red flag was misinformation about the cost to purchase more effective flexible classroom furniture. Statements from interviewees were not accurate. Interviewees first said flexible furniture was too expensive and then recanted. Misinformation about cost and footprint calculations was an indication that interviewees either did not have the educational background needed to properly assess the footprint for flexible classrooms or they unquestionably relied on the COFSI report. It is also possible they did the math, perhaps realized the flaws but did not what to change the status quo because of the perceived concern that tampering with the inflexible classroom would impact funding.
An additional problem beyond cost and space size was interviewee concerns about the development of a new design strategy leading to the purchase of newer more efficient flexible classroom tools. Participants were resistant to changing the design of the inflexible general-use classroom as their perceptions were that change would require additional costs associated with the effort in finding and then implementing new tools. They preferred the default setting because the standing order for standard classroom tools was readily obtainable and most importantly thought to be inexpensive. However interviewee statements concerning these advantages were unfounded as efficiencies through effective planning could be realized by new more effectively designed tools (Acker & Miller, 2005).

Maintaining the old furniture paradigm was in part reliant upon misinformation. Administrators felt the change to classrooms would threaten the status quo, which would change funding and funding needed to be protected. The method to ensure the status quo was the use of factors with misinformation that went undetected because no one appeared to question evidence. In part this was because administrators lacked the knowledge to assess the validity of the factors they were using to argue for the continuance of the inflexible general-use classroom.

**Facilities Planning department practices.**

A factor that emerged was the influence of the Facilities Planning and Management departments concerning the practice of “policing” the enforcement of the inflexible classroom without knowing why or realizing the implications. As designers of space they lacked the dimension needed to create momentum that would merge their institutions with current best teaching practices and their learner-centered Strategic Plans. The college administrators interviewed admitted to their lack of interest in knowing teaching theories. This formed a gap in understanding how classrooms worked and made these professionals less effective as decision
makers. The knowledge these administrative departments were unaware of was fairly basic to understanding how teaching worked. It involved teaching theories and classroom experiences. Knowledge required for all educators but not for college administrators. Basic knowledge about teaching using best practices combined with the experience of standing in a classroom would have given administrators the dimension they lacked. For example, teaching enrichment courses offered at Humber College in Ontario were encouraged for all part-time teaching staff and but were mandatory for all new full-time faculty. This was understandable as teaching was their central focus. However, courses for administrators were non-existent. They could have attended those offered to faculty but there was no encouragement. Had the Facilities department staff attended classes about education they could have acquired knowledge applicable to the spaces they were planning. Learner-centered topics such as Bloom’s Taxonomy (Caffarella, 2002) and the teaching of researchers like Pat Cross (1999) were standard course material for faculty. Had Facilities Planning and Management departments attended courses they could have discovered that the introduction of flexible classrooms was part of Cross’ research. Had Facilities Planning and Management attended courses they might have made changes to classrooms long before my research study as Cross was discussing learner-centered pedagogy as early as June 1999, when she wrote about the movement away from traditional classrooms;

The old image of the classroom with a clear separation an actual physical dividing line between the teacher’s podium or desk and row upon row of students aligned to prevent communication with one another is giving way to small groups of interacting student and teams of students and teachers working together on common problems. (Cross, 1999, p. 6)
Had Facilities Planning and Management taken part in education classes they would have understood Cross and other researchers who were discussing the demise of the inflexible classroom and were advocating for flexible classrooms. Cross based her argument on the early results of studies by neuroscientists who were breaking new ground about how students learn. Current researchers like Scott-Webber (2012a) echoed Cross’s arguments advocating for flexible student-centered learning and supportive space. Wolfe (2010) suggested that what we now know from brain science is that children’s brains are actually altering due to the digital age. This researcher also added that students must keep moving within space that offers flexibility.

The site review of campus space confirmed the colleges in this study maintained inflexible general-use classrooms. This was attributed in part to two factors. First, the Facilities Planners admitted their limited interest in connecting education space with campus operational space. Second, they were not required nor were interested in taking courses related to teaching as they said they were too busy. Literature on this topic confirmed Facilities Planners preferred to read about or write articles associated with windows that leak, concerns within their silo of expertise (Kennedy, 2004). The isolation of literature, the lack of training in design and education, and the self-interest of administrators were barriers reinforcing the resistance to change by Facilities Planning and Management departments.

**Practice and policy with no change.**

Why had business environments changed both physically and technologically while general-use classrooms in higher education institutions had not (Jukes & McCain, 2003, 2007; Scott-Webber, 2012a)? Other researchers too were puzzled by this phenomenon over the concern that students would not be prepared to transition from school in order to take on the challenges presented by open collaborative global workplaces. The reason for not transitioning space
appeared to be due to practices and policies inherent within the colleges with a bias for the use of a default inflexible classroom space. These policies were contrary to research findings that noted academic environments were successful when they aided in assisting students whose personality types were congruent with environments that acquired unique features reflective of their profession (Smart et al., 2006). As a designer I agree as many current professional office environments are collaborative and use flexible space tools. As an educator, I concur with Scott-Webber (2012a, 2012b); much of our learning space in colleges does not reflect the work environment, as it is inflexible, closed and stagnant. As a researcher, I discovered the continued use of the general use-classroom was in part due to practices and policies of the subject colleges and in the absence of a reassessment, the general-use classroom will remain unchanged.

**Practice and policy concerning technology.**

The prolonged stagnation of the physical teaching environment has halted progress for technology as well as new teaching methods. Jukes and McCain commented, “It’s time that educators recognize that we live in an intensely graphical world which makes the user of images, sounds and video chips a basic part of the communication process” (2003, p. 55). Technology had shifted control from the educator to the student. Researchers questioned whether the advancement of technology and information had made teachers in higher education institutions obsolete (Millar, 2012). In the new age of technology, lectures could be downloaded to small devices from websites and viewed by thousands. Facts once requiring a trip to the library could be found by conducting a simple web search. Millar commented we live “in an era when a student can access more information through her cellphone than a professor can consume in a lifetime” (2012, p. 2). So why do we keep using bricks and mortar institutions? The Director interviewees in colleges Red and Blue commented that the combination of technology owned by
students, static row-and-column tools and teaching using lectures was, by all accounts, considered a bad learning experience that they were hoping to change at some future date. Other participants who were college administrators did not agree as they expressed their fear of new technology. Nonetheless, there was some acknowledgement of new technology and software programs that indicated education was experiencing pressure to change sooner rather than later. There was even some discussion about changing classroom types. However, the barrier that emerged was the lack of momentum for acceptance of change to include education reform. Scott-Webber indicated that some education reform had happened, but overall, the change to date was minimal. As Scott-Webber put it, “Density, funding models, teaching practices and 50-year-old special designs are part of the issue” (2012a, p. 10). A holistic approach to education and space had to happen quickly and if administrators did not change, they were facing problems for our students who needed the skills necessary for transition into the global workforce.

**Practice and policy concerning anonymity.**

Speaking broadly, the need for anonymity exhibited by participants was for fear of repercussions as there was an undercurrent of coercive behaviour (punishment for non-alignment) that influenced decisions made by participants. It worked to derail the institutional priorities to drive agendas. Strategic planning, master planning and academic program planning in the subject colleges were decentralised into silos of departmental expertise who drove their agendas. At times participants said they used bullying to pressure others to stay aligned. Silos were not integrated with other stakeholders to include students and faculty. The threat of punishment was an undercurrent of negativity that worked concurrently with decision-making about classroom space types at colleges. The use of punishments to maintain the status quo added to the effective isolation of decisions. If decisions were unpopular then no one complained
too loudly. Bullying and punishments bothered me as I found these tactics disturbing.

Researchers noted these behaviours need not happen. Case study examples found in Chapter two demonstrated success at their institutions had already been achieved and planning had been communicated to stakeholders and integrated with the institutions values. At these institutions, plans for expansion of programs and enrolments were considered as they related to current and future space needs. Further, education innovation, infrastructure flexibility and adaptability, elements needed to accommodate growth, were a part of the strategy of implementation as was a method of measuring constant change (Blanchette, 2012).

An unfortunate factor discovered was participants in this study were working within a context of constant threat of punishment. This did not work well for making decisions within the study colleges, as each decision made appeared to be second-guessed, and good decisions that might have benefited the institution were dropped because they were often met with disapproval and reprisals. Without cooperation institutions cannot function as healthy workplaces and cannot make good decisions about change to their facilities, as they are preoccupied with remaining aligned and sustaining the status quo.

**Implications**

The following discussion examines the implications for further research suggested by the findings of this study. Although three institutions were studied, an expanded exploration of this study could benefit other HEIs beyond this small group.

**Inter-institutional differences.**

The three subject colleges were not entirely the same and demonstrated inter-institutional differences. The differences between the institutions indicated either the possibility of successful movement toward flexible classrooms in the future or the continued use of the inflexible
classroom. Future studies might examine what inter-institutional change is needed to successfully alter space that will benefit educators and students.

_Silos and collaboration._

The ability of the subject colleges to change classroom types based on the data gathered from interviewees in Colleges Red and Blue seemed minimal. However, College Green demonstrated they may have the potential to successfully change classroom types in the future. The administrators in College Green demonstrated that, as a team, they worked together using inclusive and collaborative methods of governance. They demonstrated they respected one another and were aligned with the leadership of the V.P. Academic who established the direction. Furthermore, they appeared to understand learning-centered pedagogy and frequently talked about doing all they could to benefit their student population. Their statements indicated that they recognized hurdles that had to be overcome to make changes within their institution. They also expressed the desire to change all teaching environments, including purpose-built, from inflexible to learner-centered environments shared by the entire institution. In addition, their interview statements were consistent and they appeared to be respectful of each other as leaders. Perhaps College Green would eventually find the momentum needed to move forward, and would change classrooms from inflexible to flexible learner-centered environments.

Colleges Red and Blue demonstrated their institutional culture was less collaborative. Statements about leadership, mutual respect and trust demonstrated they were less supportive of each other. Administrative groups formed silos. Further, strict policies upheld by silos within Colleges Red and Green prevented any change to the historic, standard of inflexible classrooms. It was possible that without a revised focus concerning classroom design and the momentum to move toward change to classrooms these two colleges could fall behind and students could drop
out to seek more relevant learning experiences, as predicted by Scott-Webber (2013). What institutional characteristics are associated with movement toward flexible classrooms would be a topic for future research.

**Alignment with Strategic Plans.**

This study questioned whether the classroom types of three institutions were in alignment with their Strategic Plan documents and explored whether the Plan affected decisions about their internal teaching space. The outcome from this study was specific to these institutions but it could be used in a future study to benchmark how other colleges might align with their Strategic Plans and their campus learning environments.

The assessment of three college Strategic Plans was based on the exploration of their two unique internal characteristics that were first, the institution’s mission statement and second the institution’s shared purpose. Also present were the institutions two visions. One was concerned with external driving forces centered on factors outside the institution and the other was the colleges internal forces representing the unique characteristics of the institution (Delprino, 2013).

It was discovered that the subject colleges were not the same. Two colleges were not centred on their Strategic Plan mission, vision and values and these created differences among administrators that were fractious. However, one college demonstrated leadership characteristics that were in alignment as administration shared a similar vision and purpose with their Strategic Plan. The assessment of data identified that it was important for the unity of an institution to have cooperation that was inclusive of all staff with administrative bodies in alignment with the institutions Strategic Plan. Cooperative alignment with shared responsibility created balance between the institutions focus, their policies processes and procedures. Balance allowed the institution to move forward as a unified body and helped create the possibility of momentum.
required to make change. However, balance, cooperation and alignment with the Strategic Plan were reliant upon a stable contextual platform containing positive components.

**Agendas and funding.**

A component of the contextual platform at each of the subject colleges was the degree of cooperation and collaboration occurring among administrators. A negative component identified in this research and present in the research of others, was the degree of non-alignment within administrative groups that created departmental silos (Delprino, 2013). Departmental silos in two of the subject colleges maintained a policy that upheld the continuance of standard inflexible general-use classrooms. The policy was managed by factors that used the inflexible classroom as the standard for funding. One of the three colleges did not uphold that policy and was contemplating change to the classroom setting. However, like the other two colleges the impact on funding due to change was a concern. Two characteristics sustained mechanisms to control funding and thus maintain adherence to one type of teaching space. First, discussions concerning space selection at these colleges were not inclusive of an array of administrators. And second, departments did not work within a context of greater cooperation and collaboration. Instead, participants who were administrators at two of the three colleges formed power blocs or departmental silo alliances. Their mandates were policed by Facilities Planning but backed by the Registrar and Finance departments. They used factors based largely on misinformation to ensure others within the institution would not interfere with their priority to ensure funding by means of controlling the sustained use of the standard general-use classroom. They thought this was the only way to maximize space and schedule utilization. However, it was discovered that administration worked contrary to the aims of their learner-centered Strategic Plans. Nonetheless, they achieved their priorities for maintaining inflexible hierarchie general-use
classrooms by distorting or misrepresenting factors to faculty who had no expertise to argue otherwise.

Although there were inter-institutional differences in power, governance, policies, processes and procedures between the colleges studied the physical look of the campuses was the same. Site visits demonstrated non-alignment between classroom type and their Strategic Plans in all three colleges. The colleges were not learner-centered by virtue of the physical evidence based on the quantity of inflexible teaching spaces discovered within the walls of their institutions. The inflexible spaces were a contradiction of the goals and aims described in their Strategic Plans.

**Problematic governance policies.**

A factor explored was the relationship between the colleges and government. It formed a contextual influence supporting the continuance of inflexible general-use classrooms. According to government interviewees who provided their external (etic) views, their function was to ensure alignment with policy, accountability and to ensure the proper use of funds. However, this research and the research of others identified the monopsony governance framework of policies, processes and procedures was over-burdened by accountability and troubled by funding issues (Cooke, 2007; Hook, 2002; Lang, 2008). Although the findings of this study were specific to three colleges and considering a prime example of the problematic relationship, Infrastructure Ontario was narrow, it might be possible to use the findings of this study to benchmark and compare how other institutions’ (emic) views work with government.

This study found relationships between colleges and government to be difficult. Infrastructure Ontario (Ontario Infrastructure and Lands Corporation Act, 2011) was an example of a provincially-legislated mandate indicative of the current problematic relationship between
the two parties. Its impact on colleges was consistent with the historic relationship of the two. This problematic relationship impacted the general-use classroom in two ways. One was that this legislation in particular was a source of administrative distraction through the increased requirement for accountability. However, it was not just accountability that was the issue as arguably accountability was beneficial to ensure colleges demonstrated responsible spending of public funds. It was about finding extra staff to manage the increased administrative need to manage I.O. and the added burden of the cost to support the venture. The second problem was the legislation reduced funds earmarked for project expansion by thirty percent. The reduction of funds was used as a contingency fee to mitigate government risk. The amount was high in that my experience with the industry standard used by interior designers, architects and commercial contractors for contingencies mitigating risk at approximately ten percent. “The maximum risk allowance, which is assumed to have a 10% chance of being exceeded, is estimated by the project team based on past experience or records (e.g. most expensive piling at the maximum length)” (Baccarini, 2005, p.2). An additional point was colleges whose projects did not use the funds set aside for risk, did not get them back.

This study also discovered that colleges should be concentrating on the management of their internal processes which should align with the goals of their Strategic Plans, and should not be disproportionately distracted by external matters. Interviewees explained the distraction was major as this provincial mandate reduced funding which could otherwise go into college infrastructure. It also required an incredible amount of accountability, much more than in the past. The findings of this study confirmed the government was not simply the distributor and monitor of funds. From the perspective of colleges in this study, who at the time of interviews
were dealing with considerable fallout from Infrastructure Ontario, the government was a troublesome parent.

The impact of I.O. churned up ongoing issues between the government and colleges. Dealing with these issues was distracting and problematic. They tended to break down communication, to disrupt processes, and interrupt policies by constantly throwing new issues into the mix. The issues described could not be trivialized. They appeared to paralyze systems and processes needed for space management. Interviewees did not give clear responses to questions concerning who was responsible, how space management was handled and when in the processes key decisions were made. Blanchette commented, “The most pressing implications for practice is the importance of establishing a process for space management” (2013, p. 8). How could colleges establish processes for space management when their mandates were constantly being undermined by drastic fluctuations in funding and increased requirements for accountability? All of these factors impacted the general-use classroom. Distractions meant colleges were unable to look internally other than at the stability afforded by ensuring funding through bums in seats. Interviewees commented they did not have time to work on alternatives to general-use classrooms and consequently they did not want to make the effort. The end result was students were penalized.

Higher Education Institutions might influence the external driving forces of government when in control of their internal driving forces. Achievement of revised goals would require an open approach between government and colleges allowing a greater appreciation of the interrelatedness of their environments but it would ease the tension between parties (Blanchette, 2012). Learning to work together could strategically align forces external to institutions. The outcome could be the reduction of distractions for the colleges allowing them to concentrate on
their internal governance. How to effect strategic realignments after years of problematic existence would be a difficult task requiring further study.

**The teaching community.**

Results of this study included observations made by the researcher and supported by data as well as equally important evidence from what remained unspoken. Factors discovered warranting future research concerned the methods used by administrators to make decisions about classroom space types. Not discussed by interviewees was the ratio of students who were a means of obtaining funding to teachers who were a cost to the colleges. Desired by the colleges was the formula of fewer teachers in large, efficient inflexible general-use classrooms. Ideal was the tried and true method of filling inflexible general-use classrooms with students to capacity with one teacher in control. This was the aim of HEIs (Personal Communication, Scott-Webber, November 16, 2014). The inflexible general-use classroom introduced the possibility of change to the old formula. The presumption was old campus buildings would require costly renovation to make them flexible and the student/teacher ratio might require change. That said the one-to-many faculty to student ratio as a money maker/saver should not be overlooked as part of the reason for why inflexible general-use classrooms continue to be built in new facilities. This is of interest for a future study.

Interviewees suggested faculty did not want change to inflexible classrooms. What was not discussed was research indicating faculty and students wanted flexible teaching environments (Lasker, 2012). Although the use of anecdotal feedback was confined to the three colleges, it would be beneficial to formally conduct research with the users of college classroom space to assess their views of flexible versus inflexible classrooms.
Anecdotal evidence and hallway meetings were the preferred method used by participating administrators to find evidence in favour of the inflexible general-use classroom. The method of feedback from teachers was heavily filtered. Consequently the voices of all teachers in this study were not coming through. It appeared, only those in favour of inflexible classrooms were being listened to by administrators. What was repeated by interviewees was the fact that faculty did not want to see a change to classroom configuration. It was suggested that faculty preferred a classroom in which they faced students and students sat in rows facing them. They preferred classrooms that were not messy and were filled with familiar tools. However, research literature said a growing number of teachers wanted change (Lippincott et al., 2009). To that end the voices of teachers emerging from research articles and studies appeared to be growing. Faculties in case studies found in chapter two were not against less structured teaching spaces. They were in favour of supportive of learner-centered classrooms.

A factor not discussed by administrative participants concerned the content of studies suggesting that teachers were exerting pressure on colleges to create physically supportive changes to classrooms. They recognized the environmental structure of the classroom must support their learning strategies (Graetz, 2006). Literature also identified there were many teachers who were frustrated with antiquated classroom environments. As Scott-Webber commented, “I’ve seen the insides of more classrooms that I can count. Many of them are an insult to students and teachers alike” (Scott-Webber, 2012b, p. 142).

Not discussed by interviewees was research dealing with what Millennial students wanted as compared with what they currently had. Graetz (2006) commented that new, modern, innovative learning/teaching environments should be tactile, visual and stimulating. He added that Millennial students did not enjoy common space that felt institutional, bland and without
character. What they wanted was space with real objects with real meaning. Interviewees suggested this was important for purpose-built spaces but not for standard general-use classroom space. It was clear to see why stagnant environments tended to turn students off learning, in that classic classrooms seen in site walkthroughs tended to be dull, boring and uncomfortable spaces. Furthermore, many of the classic classrooms constructed during the 1960s were designed and built without attention to proper heating, cooling or ventilation. These overcrowded and uncomfortable spaces likely caused discomfort and it was expected these conditions interfered with learning. Improved learning space with proper environmental enhancements suited for teaching would benefit students (Gee, 2006; Graetz, 2006; Swan 2010).

What should be done to classrooms to improve their usability? A designer of space might recommend windows connected to a view, or spaces with interior walls cosmetically treated with texture and character. But research tells us this is not enough as it points out that many new flexible teaching environments continue to fall short in that they are, “awash in environmental information, only a small fraction of which constitute the sights and sounds of instruction” (Graetz, 2006, p. 6.1). What is missing? Researchers noted Millennial students wanted environments that strengthen learning by increasing visual enhancements. Graetz (2006) commented that to achieve an environmentally useful education structure it should also include appropriate air quality, lighting and situational comfort to support education spaces. Interviewees did not mention environmental issues for classroom spaces but did discuss fixing potholes in the parking lot.

What was not said about education space was an important factor in understanding the prioritization of learning environments. Our out-dated general-use classrooms are failing our students and Scott-Webber predicts if higher education institutions are not able to reform
quickly, our students will not be able to compete globally (Scott-Webber, 2012a, p. 10). There is urgency to facilitating change to our institutions. However the discovery of what students want and need warrants future research.

**Consideration that space mattered.**

A future study would explore who should best administer all matters of space at colleges. This researcher found from the answers given during the interviews, that administrators had very limited knowledge about the importance of the relationship of space and effective learning. They stumbled on policy, process and procedure questions. Providing space appeared to be completed by rote rather than with true understanding of what was actually needed. Future studies would seek appropriate working models for Higher Education Institutions.

Prior to the interviews, it appeared the participants had not given much thought to general-use classrooms or, that this space mattered as a support for student-centered learning. However, in thoughtful reflection, at the end of the sessions, the interviewees commented this was an important topic that they had not previously thought about. They had not viewed the general-use classroom as supportive space having an impact on learning. They did not realize their responsibility for the production of appropriate teaching spaces. The effect of exposure to best practice teaching combined with design solutions would be a rewarding study.

**Implications of the continued gap.**

Factors warranting future research concerned the gap in understanding that physical space appropriate to users mattered. Although research in this study was concerned with a small number of colleges in Ontario it would be of interest to conduct research to discover whether other institutions also experienced a gap in seeing flexible space as a functioning partner supporting learner-centered pedagogy.
In the short story, *A Scoundrel in Bohemia*, Sir Arthur Conon Doyle wrote, “*You see but you do not observe*” (Paget, 2014, p.1). This statement is perhaps a good description of the gap in seeing space as deficient. In Chapter two, it was questioned how higher education institution administrators who might have a learner-centered pedagogical focus could walk around college campuses without noticing the numerous inflexible general-use classrooms. While conducting interviews, this question was always present. Questions posed to interviewees considered the presence of a gap connecting learner-centered teaching with the flexibility needed in classrooms to support this kind of education. Questions and methods of discovery with the intent of drawing out comments about what was perceived as obvious were posed to interviewees and evidence searched for the gap when viewing teaching space that is deficient. That is, a gap in observing. A gap in understanding or a failure to connect the dots in recognizing flexible space was directly associated with learner-centered teaching and considered a gap in understanding this relationship.

A factor working to support the gap in participants’ understanding was the historic and generational bias expressed by some respondents, who trivialized the importance of the classroom space by saying “if it ain’t broke, don’t fix it.” They were taught in rigid spaces and it did not “kill” them or harm them. Overall interviewees questioned what the “problem” was with leaving the space as it was, in that there was no problem.

This constituted the gap, the inability to recognize space played a part in supporting learner-centered teaching. It acted just like a blindfold covering administrative eyes and was likely present as administrators walked through college campuses. It was also present in the Strategic Plans that were learner-centered and the college campuses that were largely teacher-centered.
The lack of education and expertise, unfounded beliefs, and historic and generational biases appeared to be reasons for maintaining the inflexible general-use classroom. These were essential factors needed when ensuring the gap remained. These factors also protected maximum funding via space and scheduling utilization with the continued use of the inflexible general-use classroom.

Further research studies

In this study, factors were discovered that contributed to the resolve of participants to reject flexible space and choose inflexible teacher-centered classroom space. The implication of their decisions broadened this researcher’s understanding of the problem posed in this thesis and opened the door for future research. This research considered the possibility that general-use classrooms were symptomatic of other, possibly greater, issues that might occur beyond the narrow scope of its exploration. It was the aim of this researcher to use the outcome of this study as an initial benchmark for future research. To that end future exploration could expand the scope of this study to include other colleges.

The development of design studies.

A factor contributing to the continuance of the inflexible general-use classroom was that there was no assessment of the usefulness of the classroom space other than the COFSI footprint calculations used for the maximization of funding. There was no evidence of design studies that might have been conducted by colleges that compared floor plan layouts that assessed new theories of pedagogy and their relation to space and tools. Additionally, I found other than furniture manufacturers whose studies suggested design solutions, no one conducted studies that compared inflexible with flexible general-use classrooms. It was not the aim of this research study to suggest design solutions that might change inflexible to flexible general-use classrooms
and at no time did redesigning flexible classroom space with identifiable furniture and teaching equipment take place. That was because the outcome of that kind of exercise should be conducted by designers and educators who would collaborate and produce new templates for learning spaces. Instead, I decided to conduct a study that explored the inflexible model of classroom design and to see what emerged from strategically assessing what might work in order to persuade administrators in charge of space to alter their decision making processes. It would be new considerations formed by administrators that would lead to the development of new innovative templates yet to be discovered by future studies applied to learning spaces.

One of the most important messages to come from this research is that educational space is a place that matters and, as such, it requires constant evaluation and investment so that it could be of benefit to the student population it supports. This study discovered learning spaces could not move away from inflexible to flexible space without focusing the ever-changing diverse nature of students. Additionally, there had to be a watchful eye on constantly changing external and internal forces shaping our learning environments. Mainstreaming new physical advancements based on the hope they might address the maximization of space and scheduling, and then using and reusing the new settings without appropriate testing was considered by this researcher to be a flawed strategy. If history is our teacher then this study discovered it was the role of administrators to find factors grounded in real research to support priorities. Old standard classrooms should have been replaced with tested models that genuinely work for their users. New classrooms must reflect the new understanding that space matters to the entire education institution.

This study discovered it was the administrators’ responsibility to remain within tight budgets to support fiscal responsibility. However, tight budgets were not the sole factor in
preventing change to the general-use classroom. Fiscal restraint clouded judgment and prevented
the development of good space. Stagnation happened because administrators worked in isolated
silos. It happened because they did not or could not put forth effort, were too disorganized and
were too preoccupied with government directives and thus could not find the momentum to
move forward.

This study discovered, to successfully and effectively capture maximum funding,
administrators needed to focus on evidence-based practices in which they actively examined
assumptions while collaborating with others. They needed to seek evidence of their effectiveness
and be prepared to adapt or change practices as needs arose. Other researchers agree that a new
theoretical framework would emerge from thoughtfully designed and carefully executed cross-
disciplinary research (Painter et al., 2013).

Policies processes and procedures.

Many factors influenced interviewees who were administrators of campus space to choose
inflexible general-use classrooms over flexible classrooms. Some factors were driven by
government legislation such as SuperBuild (Eves & Lindsay, 2000). There were many
components of this legislative bill. However interviewees were most interested in the segment
that funded colleges according to the number of students registered in a semester. The number of
registered students in a semester was dependent upon the capacity of the campus, and the number
of general-use classrooms largely determined the capacity. The ratio of student to educator
efficiency influenced administrators who considered the most effective space to be the inflexible
general-use classroom. The decision to use this classroom model was made in the absence of
consideration of pedagogy and student needs. Decisions were made using a mathematical model.
The standard general-use classroom capacity depended on the number of students registered in
the semester. Adding to its efficiency was the scheduling system. Thus the standard classroom reflected both the number of students registered and the greatest seat capacity available with maximization of hours. The connection between inflexible and flexible classrooms was largely about the perceived stability afforded by the continuance of the inflexible standard classroom within the institution. Many factors used by participants, some based on misinformation, ensured the continuance of the inflexible classroom. It was believed that change would in some way destabilize the funding process. Interviewees explained that the Registrar and the Registration and Finance Departments tightly controlled the scheduling system and classrooms. Future research should focus on policies, processes and procedures needed to change administrative decisions toward space standards within their campuses.

Interviewees identified the mechanism for funding began with the count of students at a specific date at the beginning of each semester. The count was provided by each program and was reported to the Registrar, who passed the data to the government. The government then provided funds to the colleges through their Finance Departments. Scheduling for programs was a critical operational consideration because each student required a dedicated seat on campus for a specified number of hours per week. Scheduling of general-use classrooms was the responsibility of the Registrar who directed policy, processes and procedures for its use. The Registrar ensured the use of all general-use classrooms was maximized physically by filling all available general-use classroom seats with students throughout the day and evening. The interviewees indicated a policy of 85% use of every classroom every day for five days per week was preferred, even though the COFSI Report called for a maximum usage of 80% (2012). The added 5% illustrated policies of use and importance. The inflexible general-use classroom was to be used all of the time, more than purpose-built spaces and a minimum of 80% where possible to
85%. The importance of this space as a means to obtain funds was recognized by the institutions but the institutions undervalued this space as a teaching environment designed to support student efforts. What was important was utilizing this space to its maximum capacity without changing its functionality. Future research should examine how to design classrooms that support students in learner-centred environments without compromising the maximization of space utilization.

*The importance of institutional research.*

A finding of this study was that while participants were focused on maximum space utilization and scheduling for individual classrooms they did not consider facets forming a bigger picture than that of maximization of space. Administrators did not appear to realize the responsibility of housing students on campuses with an understanding of their safety and security. They appeared to have omitted research into why the Fire Marshal fined the institutions for over subscribing classrooms. They failed to understand a facet of the bigger picture was the Ontario Building Code, policed by the Fire Department that restricted building occupancy based on the evacuation of the campus buildings.

When newly completed projects came up in interviews it was noticed that administrators in this study did not discuss post-occupancy evaluation of space and the learning outcomes of education projects. This demonstrated there was little consideration of research by administrators who should evaluate the success of their students’ use of space by conducting research. Issues blocking evaluation of space were due to the ability of participants to define what they were able to measure and understand the results. When discussing research, administrators made reference to the Key Performance Indicator (KPI) study conducted yearly at all colleges in Ontario. Painter (2013) commented that while this form of research was useful it was narrow in scope and conducted without consideration of students in classrooms. The focus of KPI and other studies
like it was given to topics like the frequency of use of space and the effects of technology on space. These were easily measured and their outcomes were easily discussed. The lack of formal testing of space other than the scant number of questions in the KPI demonstrated a gap between the overall goal of learning space design research and what researchers were able to measure in a practical sense. Unfortunately it also reflected a lack of consensus across HEIs concerning how learning outcomes within appropriate space could be meaningfully measured (Painter et al., 2013, p. 30).

How to quantify the effect of space on students and educators and find a meaningful measure was considered a difficulty by participants in this study. Providing effective measures of space and tools would take trust and effort. For example, research was possible with responsible furniture manufacturers that had the experience and the appropriate measuring instruments. However, a factor discouraging collaboration came from both inside and outside the institutions. There was a great mistrust of furniture manufacturers. Administrative participants working internally preferred to remain removed as they explained furniture manufacturers were only sales people. Administrative participant experts who were external to the institutions were wary of college personnel as they understood they could be subjected to punishments. These factors kept college personnel on track with the continued use of the same familiar tools. Future research could explore how to insert responsible investigation back into administrative methods.

*Identify the voices of students and faculty.*

If there was a call for space change from academics and students it was not present in the interviews conducted, suggesting their voice was not sought out by administrators in this study. What interviewees repeatedly said was faculty/academics only wanted inflexible space. The participants rarely talked about what students wanted. If mentioned at all, what was discussed
was what was said to be good for students’ and not what students’ said they wanted. Student voices in this study appeared to be filtered out. However, research conducted by Oblinger (2006) said students were one of the most influential groups advocating for change to existing classroom conditions. They did not want boring, static space but wanted spaces to meet their education and future work expectations. They wanted their environment to support their ergonomic, social and learning needs and they wanted casual, multi-functional learning spaces where they could relax within a comfortable environment while accessing a variety of electronic devices (Oblinger, 2006). Future research should ask students and teachers what they want and need within their classroom spaces.

*Expand the scope of this research study.*

Interviewees did not mention recent discoveries concerning how students think and work in instructional space. Not discussed were studies of education and brain research coming from the fields of psychology, neurology and pedagogy. The confluence of research from these three disciplines is known as educational neuroscience (Wolfe, 2010). The absence of references to the influence of brain research was an indication that interviewees were unaware of studies of cognitive changes to students within the educational context. This reinforced the finding that administrators conducted very little research into education. Furthermore, the administrators appeared to be unaware of researchers who advocated for best-practice based facilities and who cited educational neuroscience in their articles. Perhaps the absence of references to research speaks to the level of teaching and design experience within this group of interviewees. Offering training to administrators that lacked expertise in education and design would help upgrade skills. Additionally, hiring the right kind of individuals with the right skills for positions where
teaching and design experience are essential, should be added to the criteria for the job. Future studies on this topic would add valuable knowledge to existing research.

The general-use classroom was at the time of this study a relatively small quantity of space when compared to the overall size of the campus environment. Data concerning the breakdown of classroom space as compared to other spaces was found in the Colleges Ontario Facilities Standards & Inventory Summary (E.C.S., 2012). My research considered, regardless of quantity, this space type was worthy of exploration as issues surrounding the classroom illuminated concerns involving a bigger picture of campus spaces. The study of policy, procedures and processes that enter into the decision-making processes for the general-use classroom were worthy of exploration as they lead to future studies concerning other college spaces such as laboratories, studios, ancillary areas, offices and more. Additionally, ongoing studies of this kind can be helpful when considering decision-making policies, processes and procedures concerning the development of entirely new types of space that currently did not exist at the time of this study.

A future research question could be: What factors become priorities in decision-making process influencing administrators of campus space when considering all facilities within college campuses?

**Recommendations for Change**

This study investigated the continued utilization of the inflexible general-use classroom. Findings suggested interviewees demonstrated a tendency to find factors that became priorities in their decision-making processes influencing their decisions to use inflexible general-use classroom types regardless of best-practices and empirical research. To that end, regardless of best-practices and empirical research, policy makers and administrators deployed hierarchic
traditional general-use classroom spaces and disregarded or were unaware of data indicating students learn better in flexible learner-centered classroom environments.

**Change.**

It is conceivable future questions about teaching environments will explore unimaginable teaching and learning spaces. One can only imagine a future when someone will question factors that are current priorities influencing administrators of education space to change flexible space, which no longer serves their student population. It is the goal of this research to stimulate questions about appropriate teaching space and to create the momentum needed to make changes to the historic relic we call the general-use classroom. Ideally this kind of investigation will happen at more frequent intervals than every 4,000 years. Change to the general-use classroom is about supporting students using the very best tools we have.

**Change the reference.**

One of the first recommendations would be to refrain from using the word *classroom.* Retire the historic reference by removing the word *classroom* from our vernacular and use it only in reference to the inflexible classroom model. It is this researcher’s view, if education experts want to change from teacher-centered to learner-centered pedagogy they cannot return to the past by using an old word for a new space. As suggested by Cole (2005), educators should not only restructure the classroom they should also replace the name for it with something workable. He concluded his study by explaining:

> If the social sphere is to become re-integrated, it will not be by returning to the past but by creating a new kind of future in which central values of the past combine with the amazing accomplishments of the present to enable us to live in the sustainable garden for and with our children. (Cole, 2005, p. 215)
As educators and administrators go forward to bridge the gap between appropriate learner-centered space and pedagogy, they cannot continue to use a word that immediately establishes a complete picture of a space in their minds. There is a need to reframe that reference and call flexible teaching spaces *learning laboratories* or something equivalent. This is needed because interviewees commented that when *classrooms* were requested, then the standard row-and-column hierarchical space was delivered. Finding a new word would lead the way toward new possibilities disconnected from that 4,000 year-old learning environment. Retiring “classroom” would allow educators and administrators to work on another model of learning space that is different. The opinion of Scott-Webber (2012a) is a warning. If institutions do not move forward toward change, they will likely lose students who will find other, more attractive models of education.

**Change limited professional development.**

A barrier to change from inflexible to flexible general-use classrooms is the lack of ongoing professional development for all faculty and administrators. The business model of initially training full-time faculty only is problematic in that the institution cannot move forward toward a holistic understanding of best practices unless the entire institution is aware of what they are.

**Change the context, change the factors.**

Actively facilitate change by alleviating the contextual concerns of administrators who fear reprisals. They do not have a voice. They repress good ideas and hold off on making decisions not aligned with others that are more powerful. They fear punishment from others and thus seek anonymity. Delprino advised the education community to align their institutions with their Strategic Plans so everyone within the college could follow the same path, writing that “a sound
strategic planning process can allow higher education institutions to successfully maneuver through the evolving educational landscape” (2013, p. 1). This study indicated Colleges Red and Blue were following their own paths by maintaining the standard inflexible general-use classroom status quo, while ignoring the goals of their Strategic Plans. They relied heavily on misinformation as factors to persuade faculty and other administrators to retain the old standard classroom and by so trivializing the importance of teaching space. Furthermore, they ignored both best practices and the human side of education. Following this path had unfortunate consequences for employees who worked for these institutions. Employees interviewed wanted to speak out but requested anonymity. “Neglecting the human side of the process can lead to the failure of the entire process”, which can happen when employees are more concerned about their positions and future than they are about the success of their institution and alignment with their Strategic Plans (Delprino, 2013, p. 2). But concern about exposing identities and repercussions that might follow were not confined to just the education institutions. The same concerns were seen in the relationships between consultant interviewees and colleges, and between college administrators and government. Signs of stress and anxiety were present in the request for anonymity by interviewees who were concerned with repercussions from government. It was also present at interview sessions where portions of conversations were off the record, where recording was not allowed, where a transcript was redacted when interviewees revealed concerns should conversations expose their identity, where interviewees gave examples of punishments and rewards. Non-disclosure of identities and evidence that some interviewees were afraid to speak were an indication that employees were concerned about their positions and not the success of the institution. Concerns about secrecy formed an unhealthy context for sound decision-making.
It appeared that changing the context to one that is respectful of others in the organization, collegial, collaborative and aligned with others in the institution helped administrators with decisions concerning the initiation of changes needed for improved learner-centered campus space. Furthermore, it appeared that pedagogical models aligned with physical space, aligned with the institutions’ Strategic Plans and combined with a focus on the human side of the institutions’ business plan were more likely to lead the college toward a learner-centered institution. This context was more likely to achieve success as exemplified by College Green, which demonstrated as an institution, the use of collaborative processes and open conversations to support both their funding priority and the effort to change to learner-centered space.

This study indicated it was possible to change the inflexible general-use classroom to flexible ‘learning laboratories’ while maintaining the focus on maximization of space use and scheduling. Colleges did not need to use heavily weighted factors that included misinformation about real costs and footprint sizes in order to prioritize funding. Changes from inflexible to flexible learning laboratories were achievable by using slightly smaller, more mobile internal tools without adding costly technology. This would allow educators to use classrooms without the burden of new technology, and would afford the colleges the time to adapt their teaching methods from teacher-centred to learner-centered models of pedagogy. However, good decisions concerning space were more likely to happen when staff responsible for space were either trained or sought out the expertise of those educated in the subject areas of design and teaching. In addition good resolution to space issues could be achieved when the institution was aligned with their learner-centered Strategic Plans and demonstrated the institution encouraged new ideas in a respectful and collaborative way.
The problematic relationship between government and colleges was recognized as complicated, and resolution required far more intervention than changes in policies, processes and procedures. It required a resolution of cultural issues and practices that had been the method of doing business for a very long time. Most importantly, it required leadership to move it from inflexible to flexible learner-centered learning labs. A recommendation for college leaders that might encourage government funding for alternative classrooms would be to create a business plan demonstrating flexible classrooms provided a good fiscal as well as pedagogical return. This change might create an opportunity to change the hundreds of out-dated inflexible general use classrooms.

_Change the processes, change the space._

This study discovered changing classrooms types did not necessarily require an enormous expense. A mix of expensive and less expensive items could balance a budget. Analysis disclosed, the biggest expense, technology, could remain as is or could evolve on its own with its own funding. Change to appropriate and ergonomic flexible tools within classrooms was easy to accommodate and could happen as spaces were assigned for refreshing. However, the selection of tools for learning spaces required the expertise of leadership with knowledge of both design and education. A recommendation was to either employ the right people with duel expertise, or train staff appropriately. It is important to arm the people making decisions about education and space with the right knowledge. As well, ensure those responsible for change to these spaces are given opportunities to continually upgrade their knowledge of design and pedagogy. Additionally, it is a recommendation that formal evaluation and research follow any important change to education space within the institution. This evaluation and research measure would
assess how well new space functioned and would obligate decision makers to improve their decisions founded on solid research.

*Change the focus to students.*

Recommendations for improvement and change concern the institutions’ client base who are the students. This researcher considers the essential focus of colleges are the students as they expect the best from our educational institutions. This study acknowledges that the business mandate of HEIs is about serving students to include providing learner-centered physical environments. However, the focus on student-centered environments was all but absent from participants who gave their inside (emic) perspectives and interviewees who provided their outside (etic) perspectives.

The government interviewees providing their (etic) perspectives commented that students were not their responsibility or their focus, but funding and accountability for the institution were. They used heavy-handed methods to keep colleges in line but these methods were counterproductive, distracting and from what was observed tended to negatively impact the student focus by drawing attention away. The Designer and Furniture Manufacturer providing their (etic) perspectives appeared to avoid discussions concerning student-focused design. They commented their role was to provide products and services directed by college administrators who they thought had design and education expertise. It was not their role to give advice or foster change for students. The college administrators providing their (emic) perspectives were of the opinion that design direction and expertise were not their responsibility but providing space for bums in seats, fixing pot holes in the parking lot and addressing government initiatives was their primary role.
This research discovered participant’s design direction was focused on providing space to fill the institution and not about design focused that would benefit students. Given the emic and etic perspectives of participants, neither appeared to be capable of taking on a student-focused design environment in that effort and expertise was directed to the mechanical function of filling the institution and not the central reason for the institutions existence questioning; who, either internal or external, had the expertise to refocus attention back to the primary business mandate, the student.

The failure of administrative participants to recognize students as their central focus, contributed to the gap in understanding the real purpose of colleges. Ignoring the importance of supportive space needed to effectively teach students was a factor that influenced participants to choose one type of general-use classroom over the other. Prioritizing funding was important for institutional survival, but the decisions made to maintain inflexible general-use classrooms, based on inadequate knowledge and experience, was not student centered. A recommendation for college administrators is to learn about collaborative methods, to align themselves with their Strategic Plans and focus their attention back to students. A suggestion for leaders in colleges is to seek help to become collaborative, incorporating best practices that include pedagogy as well as bricks and mortar transformation (Freedman & DiCecco, 2013).

*Learn from our past and moving forward.*

This research served as a mirror and as such confronted the education community with their problem concerning inappropriate teaching space that has remained a large part of campuses for decades. This research study found very little literature concerning why old classrooms still existed but had no trouble finding studies showcasing classroom spaces that had successfully changed. It was discovered that classrooms filled with furniture were not popular
and their importance was trivialized. They were described as spaces consisting of only four walls filled with chairs and tables. However, studies about changed classroom spaces filled with new technology were far more interesting. It was more pleasing to pre-test and post-test a newly designed space then to confront administrators with old classrooms they preferred not to see. Like purpose-built classrooms it was far more interesting to discuss what was new and innovative than to ask administrators why change was not happening. Nonetheless this research study was important. Absent a mirror reflecting our past and present we are prone to repeat the same mistakes. Research seeking factors that become priorities in the decision-making processes influencing administrator of campus space to choose one type of general-use classroom over another will continue, until inflexible spaces have been replaced with learner-center classrooms.

**Summary of Chapter Five**

This study found through site inspection at three subject colleges that inflexible general-use classrooms were the essential model used on campus. Interviewees revealed the tradition of inflexible general-use classrooms was entrenched. However one college appeared to have found the momentum to work toward changing their practice by saying they were moving forward with change from inflexible to flexible classrooms.

This study discovered colleges used the general-use classrooms as a means to maximize funding. There was an identified need for all colleges to maintain general-use classrooms to maximize the use of space and scheduling time. These classrooms provided most of the space Registration and Finance departments used to generate funding via enrollment. Interviewees who were external experts and key informants confirmed this priority. The decision making mechanism used to ensure this space remained as the inflexible general-use classroom was influenced by a cluster of factors that in some instances contained inaccurate information. Some
Factors were accurate while other factors had information that was untested but suited the needs of the institution, not the students. Regardless the factors were repeated and believed. No one appeared to challenge administrators or academic faculty as no one had the education or the experience to challenge the validity of their information.

This research study identified a problematic relationship between colleges and government that was historic and ongoing. Interviewees from the college and government sides both confirmed the rift. The implementation of Infrastructure Ontario was an example of the policies, processes and procedures that contributed to the current problematic relationship between the two groups (2011). Colleges resented how their needs were trivialized by the government and stated that they are treated like children, while government interviewees stated that colleges would “get over it.” Colleges said that the impact of I.O. represented an enormous loss of funding needed by their institutions and government said the funds were needed to cover their risk. General-use classrooms took the brunt of the impact. First, colleges believed that they could not afford to change their space standards due to a perceived loss of funding. Second, disruption to processes and distraction due to increased bureaucratic requirements for administrators caused by government mandate appeared to be a factor that was used to reinforce the continued use of the default setting of standardized classrooms. The third was that colleges did not appear to want to disrupt the policies, processes and procedures in place or to expend the effort required to make changes to standard inflexible classrooms.

It was found that solutions to change the relationship between the government and colleges require more study because animosity and mistrust are long-standing and deeply imbedded problems within the structures of the two groups. What is known is there is a need to
break the current pattern. This will take leadership as well as changes to policies, processes and procedures.

What can be done to change colleges is less complex. Simply pointing out that general-use classrooms exist has had some effect. It was discovered that soon after my interview sessions College Red, the most insistent user of inflexible general-use classroom standards, found the leadership to move forward in another direction. They appointed a task force to look into change from inflexible to flexible general-use classrooms. This college is moving forward in another direction.

Any loss of funding impacts the ability of colleges to sustain their campuses. While there are many forms of federal and provincial funding available, the funding formula from a *bums in seats* policy is a source that can be counted on, though it is dependent upon the number of registered students at the college. Access for all students qualifying for a college education is an additional pressure for college campuses since when enrollment is increased there is the problem of where to put them. This study discovered the strategy used by college administration is to maximize the placement of students by using the most familiar and reliable standard which is the inflexible general-use classroom. There was hesitation by one college and absolute resistance by two others to jeopardize what they perceived as a delicate balance that might be upset should the internal configuration of the general-use classroom change. This is true of urban colleges that are at capacity. A suggestion for a future study is to investigate colleges that are not under maximum enrollment pressures.

When examining the Strategic Plans of the subject colleges it was noticed there is a link between internal behaviour used to achieve an agenda and a student-centred focus. Interviewees shared that colleges functioning collaboratively reflected the goals of their student-centered
Strategic Plans because, as a college, they were willing to invest in an inclusive agenda that supported the integration of flexible classrooms. However, colleges whose governance was not aligned with their Strategic Plan maintained a policy of standard inflexible operational environments that were not student-centered. What emerged from data at these colleges was an agenda that ensured standard inflexible general-use classrooms were maintained through persuasive techniques. It would be valuable to repeat this study again with additional colleges. The purpose would be to confirm the link between internal governance, student centered education and the use of campus space.

This final chapter outlined the contributions of this research to the greater body of research knowledge concerning the impact of a particular physical space on college campuses and its effect on students. The aim of this study was to raise awareness of the gap formed between pedagogy and design and to create enough momentum to move decision-makers away from an old paradigm into new and more effective educational models. This chapter considered research findings concerning administrative policies, procedures, and processes that inhibit college decision-makers to change from the historic inflexible classroom space to flexible learner-centered space. It is the goal and the hopeful outcome of this study to alert government administrators, college administrators and contributors to education spaces of the dangers of being complacent. They should not be reliant on old standards and out-dated methods. They should consider that innovative and supportive education does not necessarily incur more cost and should realize the real cost is that of not changing and not utilizing best education practices which benefit our students. A goal of this study was to alert administrators of campus space that the real danger is continued inaction ultimately robbing our students of the learning experiences they deserve. It is the hope that this study will give others the knowledge and the incentive
needed to work toward creating learning spaces that are appropriate for our college students, who
deserve the very best from us.
References


Blanchette, S. (2012). Space and power in the ivory tower: Effective space management and
decision making-what's the problem and what's the process? Society for College and
University Planners, 4(1), 1-11.

http://www.wonderfooditaly.info/infodest/oldest-university-europe-places/?lang=en


(pp. 1-32).

Britnell, J., Andriati, R., & Wilson, L. (2012). Learning space design with an inclusive planning
process promotes user engagement 47. from www.educause.edu/ero/article/learning-
space-design-inclusive-planning-process-promotes-user-engagement


Spaces.

CCCSE. (2010). Center for Community College Student Engagement. The heart of student
success: Teaching, learning, and college completion (2010 CCCSE Findings). Austin,
TX: The University of Texas at Austin, Community College Leadership Program


reshaping higher education in Ontario. Montreal, QC, Kingston, ON: McGill-Queen's
University Press.


Diener, S. (2009). This will change everything. Virtual worlds in Education. *Proceedings ascilite Auckland, Same places, different spaces* (Fall paper).


Ethics approval (2012).


Halstead, J. (2011). *Navigating the new pedagogy: six principles that transform teaching*.


www.edi.msstate.edu/work/pdf/history_studio_based_learning


Lopes, V. (2008). *The efficacy of a course management system in learning: perceptions of students and faculty at one Ontario college*. Doctor of Philosophy, OISE, University of Toronto, Toronto.ON.


http://sherlockholmesquotes.com/


Swan, B. (2010). Facilities management: there's never enough money, enough time and even new construction is managed by staff too busy with daily routine. And, oh yeah. They deliver. College Administrator Magazine.


Appendix A
Matrix of Research Questions

Operative research statement:

In spite of best practice evidence that positively demonstrates flexible classrooms affect student success, inflexible general-use classrooms remain a significant part of college campuses (Bickford & Wright, 2006; Lackney & Jacobs, 2002).

Primary research question:

- What factors become priorities in the decision making process that influence administrators of campus space to choose one type of general-use classroom over another?

Secondary research questions:

- What is the importance of general-use classroom space?

  This question is based on themes found in literature located in Chapter two and seeks confirmation through scripted questions that probe for factors that influence priorities that become barriers to change framed by limited research, silos of expertise, traditional and habitual use of a standard space model, issues surrounding technology, government and college relationships, funding, lack of leadership and the generational biases of interviewees.

- What are the policies, processes and procedures considered by administrators when determining a classroom model?

  This question is based on themes found in literature located in Chapter two and frames scripted questions concerning operational issues to include the structure and governance of colleges.

- What are the other factors that influence administrators when determining the general-classroom space type?

  This question seeks to find new information

Part 1; Questions for data collection without participants.

<table>
<thead>
<tr>
<th>Non-scripted Research Questions</th>
<th>Data Collection Tool and/or Process</th>
<th>Operational Questions</th>
<th>Key Variables</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>The visual instrument</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q. A1. What is the cost to</td>
<td>Visual Instrument;</td>
<td>Does the cost of supply and</td>
<td>-cost difference is the same</td>
<td>Comparison of general-use</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Supply and install tools identified with each of the general-use classroom model types?

| Using pictorial models, request pricing from a the Dealer | Installation of tools differ significantly between general-use classroom model #1 & #2? Does the cost of the general-use classroom factor into administrative decisions to choose one space type over the other | - Cost difference is moderate - Cost difference is significant | Classroom tool costs. Data will be used to understand cost factors that might influence the decisions of administrators to choose one space type over the other. |

Q. A1. This question is designed to establish factual data. To discover whether inflexible general-use classroom tools cost more than inflexible general-use classrooms. Evidence is needed as a higher cost for flexible classrooms is a factor that prioritizes the continued use of inflexible classrooms.

The site reviews

| Q. A2. What is the approximate quantity of general-use classrooms on each of the subject campuses within this study? Assessment to include flexible verses inflexible types. | Does the college campus primarily utilize inflexible general-use classrooms or flexible general-use classrooms? Is the general-use classroom model consistent or inconsistent with decisions made by administrators? | General-use classrooms are all inflexible General-use classrooms are evenly mixed between flexible and inflexible General-use classrooms are all flexible | Analysis to quantifying the number of classroom types within each of the three subject institutions |

Q. A2. This question is designed to establish factual information. This study presumes that there are a significant number of inflexible classrooms on college campuses. The answer to the question is answers by conducting a site visit to each of the subject campuses.

The Strategic Plans

| Q. A3. Do college Strategic Plans reflect differing learning philosophies which in turn reflect differing classroom types within their | Strategic Plans obtained from subject college web-sites | Do Strategic Plans reflect inflexible hierarchic or flexible learner-centered pedagogy? Are Strategic Plans consistent with the general-use classroom types found on campus? | - Hierarchic pedagogy is reflected in the college philosophy - A mix of hierarchic and learner-centered are reflected in the college | Comparison of institution phrases indicating: 1. pedagogy & philosophy 2. Plan demonstrates physical support of the pedagogy and philosophy |
Q. A3. This question was designed to discover whether the subject college Strategic Plans differ from the objectives of their administrations. Analysis of the Strategic Plans will be compared with evidence gained from the site visit and the opinions of the administrators.

<table>
<thead>
<tr>
<th>Research Questions With Participants</th>
<th>Data Collection Tool</th>
<th>Operational Questions</th>
<th>Key Variables</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 1. If you were asked to teach 35 college students for a semester, based on your preference to a pedagogy, which one of the two model space types would you choose and why?</td>
<td>Interview question posed to all interviewees</td>
<td>Q. 1.1a. Do Interviewees express a preference toward a classroom space that differs or is consistent with the space type found on their campus? Q. 1.1b. Does historic or generational bias factor into decisions made by administrators and does that determine one space type or the other? Q. 1.1c. Do interviewees demonstrate responses that indicate a gap or inconsistency between their understanding of pedagogy and the need for physical support and does the gap in understanding factor into their decisions to select a general-classroom</td>
<td>- inclined toward lecture pedagogy with preference to inflexible classroom -inclined toward learner-centered pedagogy with preference to flexible classroom -inclined toward lecture pedagogy with preference to learner-centered classroom -inclined toward learner-centered pedagogy with preference to inflexible classroom –no preference to either classroom type or pedagogy</td>
<td>Comparison; Quantity of general-use classroom types on campus Inclination to a pedagogy and preference to a classroom type</td>
</tr>
</tbody>
</table>
Q. 1. The purpose of the question was to allow the participants to warm to the topic and to give them time to focus. It was also designed to introduce the Graphic Instrument. This question seeks to discover more detail concerning the participant’s bias toward learning and to flush out any background information concerning the interviewee that was not obvious from their job description. This general question was posed to all interviewees in order to gain insights and understanding of the interviewee’s perspective regarding their relationship with classrooms and their awareness of pedagogy. I wanted to understand whether professional experience had any bearing on administrative decisions that determine factors that become priorities to choose one type of learning model over another.

Q. 2. When building new or renovating general-use classrooms, what factors are considered when deciding between model types?

| Q. 2a. Do interviewees have input into the development of general-use classroom model types? |
| Q. 2b. With regard to interviewees that influence classroom types; i.) what are the factors that influence their decisions ii.) are the decisions founded in historic generational, cultural or fiscal reasoning |
| -do not have any input into classroom model types  |
| -do have input into classroom types  |
| -inclined toward historic rationalisation  |
| -inclined toward generational preferences  |
| -inclined toward cultural factors established around college demands  |
| -inclined toward fiscal restrictions experienced by the college  |

Q. 2. This question was designed to probe the interviewee’s knowledge into the development of general-use classroom model types. It asks administrators to discuss their input into decisions concerning classroom model types. It is designed to probe specifically for factors that influence their decisions and the question seeks to know how their decisions are crafted and what factors they use to base their decisions on.
| Q. 3. When renovating or building new space who are the administrators that make the primary decisions concerning the classroom model type? | Interview questions posed to college administrators | Q. 3a. Who makes decisions to use one classroom model type or the other? Q. 3b. Is the decision to use one classroom type over the other made unilaterally or collectively? Q. 3c. Do decisions made by committee or unilaterally always factor into an outcome that results in the determination of one type of general-use classroom space or the other? | Indicate who makes decisions: -VP Academic -Facilities -Purchasing -Government | Assessment based on respondents view filtered through historic, generational and fiscal references |

Q. 3. This question probes interviewee’s knowledge concerning the decision process. It was designed to discover who makes the decisions and seeks to find out whether the decisions are made collectively or unilaterally by that administrator or a block of administrators. It looks for direction regarding how decision making processes factor into priorities that determine the type of general-use classroom.

| Q. 4. When renovating or building new general-use classrooms describe the process, procedures and policies, beginning with the identification of the need to build the general-use space through to the implementation of the project resulting in completion of the equipped space. | Interview questions posed to college administrators | Q. 4a. Are there processes, procedures and policies in place? Q. 4b. Are the processes, procedures and policies closed and hierarchic (Facilities Planning decisions and direction only) or transparent egalitarian (decisions made by committee) Q. 4c. How do the policies, procedures and processes factor into an outcome that results in the determination of one type of general-use classroom space or the other? | -Do not have processes; implementation without consultation -Have limited process; implementation with some consultation with others -Have transparent process | Assessment based on respondents view filtered through historic, generational and fiscal references |
Q. 4. This research question was designed to discover processes, procedures and policies on place at each institution. It explores the nature of decisions and the mechanisms used to develop and enact decisions. That is are they made unilaterally or collectively within the institution. Further it was designed to determine factors that became priorities resulting in the determination of one type of general-use classroom space of the other.

Q. 5. When renovating or building new general-use classrooms do the processes, procedures and policies work together with all other criteria to build the general-use classroom space or do they differ or are they the same?

Q. 5a. Are there clear processes, procedures and policies in place?
Q. 5b. Are there other building criteria in place that influence decisions?
Q. 5c. Are the processes, procedures and policies closed and hierarchic (Facilities Planning decisions and direction only) or transparent egalitarian (by committee)
Q. 5d. How do policies, procedures and processes decisions that are made either unilaterally or within committees, factor into the outcome of the general-use classroom space type?

-Do not have processes; implementation without consultation
-Have limited process; implementation with some consultation with others
-Have transparent process with others

Assessment based on respondents view filtered through historic, generational and fiscal references

Q. 5. This question was designed to discover the criteria used by each of the subject college administrative departments to determine processes, procedures and policies in place at each institution. It explores whether internal paths affording change are clear or blurry when making decisions concerning the design of general-use classroom space.

Q. 6. When renovating or building new general-use classrooms who determines the design programming?

Q. 6a. Who gathers programming information for the general-use classroom?
Q. 6b. Does the amount of guidance and information transmitted within the programming

-No one gathers programming information concerning the general-use classroom type
-One person [insert name and department] determines and

Assessment based on respondents view filtered through historic, generational and fiscal references
Q. 6. This research question explores who within the organizations gathers data about classrooms. The question probes interviewees concerning who determines the programming for renovation of existing and new space. It concerns the decisions around the development of classroom versus purpose-built space. Additionally this question explores the processes and procedures in that are in place that determines classroom spaces.

Q. 7. Who determines the changes required to update the general-use classroom?

Q. 7a. Who (establishes the department) is responsible for change?
Q. 7b. Is the construction of the general-use classroom space formulaic without input from users or is there frequent input from others to include consultants?
Q. 7c. Is the discovery of who a factor in the determination of the outcome of general-use space types?

- No one is responsible
- One person is responsible
- A department is responsible

Assessment based on respondents view filtered through historic, generational and fiscal references

Q. 8. How often is research conducted to determine changes required to update the general-use classroom and

Q. 8a. Who within the institution is asked
Q. 8b. Who outside of the institution participates
Q. 8c. How often participate

- No one participates
- Only administrators participate
- Users of the space and administrators participate

Assessment based on respondents view filtered through historic, generational and fiscal references
<table>
<thead>
<tr>
<th>Question</th>
<th>Interview questions posed to college administrators</th>
<th>Question</th>
<th>- Do interviewees consider future changes to general-use classrooms driven by pedagogy, technology or other drivers?</th>
<th>Assessment based on respondents view filtered through historic, generational and fiscal references</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 9a.</td>
<td>Do interviewees consider future changes to general-use classrooms driven by pedagogy, technology or other drivers?</td>
<td>Q. 12b.</td>
<td>Is there a gap in understanding pedagogy, technology and space needs that factor into the outcome of general-use space types?</td>
<td>Evidence based on findings</td>
</tr>
</tbody>
</table>
| Q. 10a.  | 1) What role does government play  
2) How does it relate to colleges  
3) Does government consider space | - Do not play any role when determining space  
- Play a moderate role when determining space  
- Play a significant role when determining space | Assessment based on policies processes and procedures both historic and current |

Q. 8. This question explores who participates in research studies and who examines processes, procedure and policies that might influence changes that result in updates to general-use classrooms. The question also looks into the frequency of research and the type of research. It asks administrators to comment on the input from consultants.

Q. 9. This question leads the interviewee in that it presumes that no movement toward change in their college has been forthcoming. Nonetheless the question probes the interviewee for hopeful signs of change. The research question was designed to work in tandem with question 4.1 and gives the interviewees the opportunity to comment once more on flexible versus inflexible general-use classrooms. Further this question asks interviewees to think into the future and predict the shape of future college that might indicate that this interviewee has a vision concerning the future of college campuses.
Q. 10. This research question asks colleges to provide their inside view of Government and Colleges roles when creating campus spaces. The question was designed to probe what colleges know about Government participation. This question seeks to discover whether the Government is a supporting partner in fostering success for students by providing appropriate space for learning.

Questions 11 through 20 were additional questions posed to the Education Specialist (EDS).

Appendix B.

| Q. 11. Does government funding of colleges become a priority in the decision making process that influences administrators of campus to choose one type of general-use classroom over another? | Q. 11b. 1) What is the effect of government funding? 2) What is the effect on administration? 3) How does it influence general-use classroom development? | -does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms -plays a significant role on decisions regarding general-use classrooms | Assessment based on perception of decision making and funding |

Q. 11. This question was designed to explore the impact of government funding on campus design. It probed the consultant’s knowledge of priorities in the administrative decision making processes that might influence them to choose one type of general-use classroom over another. The question was also posed to discover concerns about the adequacy of funding for colleges.

Q. 12. Are government policies processes and procedures problematic and if they are do they in turn influence administrative decisions on campus built environments? | Q. 12. 1) What is the effect of government policies processes and procedures? 2) What is the effect on administration? 3) How do policies processes and procedures influence general-use classroom development? | -does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms -plays a significant role on decisions regarding general-use classrooms | Assessment based on perception of decision making and policies processes and procedures |

Interview questions posed to the Special Consultant providing an outside view
Q. 12. The question was intended to investigate any problematic areas in government policies, procedures and processes. Research indicates that funding and government relations are problematic. I wanted to explore to what degree and how this manifested itself in behaviour.

Q. 13. Do you know if college administrators make informed decisions about the kind of space type used?

| Interview questions posed to the Special Consultant providing an outside view | Q. 13. 1) What effects do informed decisions made by administrators have on college space? 2) How do informed decisions influence general-use classroom development? | -does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms -plays a significant role on decisions regarding general-use classrooms | Assessment based on perception of decision making and policies processes and procedures |

Q. 13. This research question was designed to explore the interviewees understanding of who the college administrators are and how they work. The specific topic probed was whether college administrators make informed decisions. The factors that I hoped would emerge concerned the prioritization of limited funding and the consultants concern that administrators do not appreciate the importance of spaces as a learning environment. That is I sought to discover whether administrators think only about the connection of this space in terms of revenue or are there other pressures that are factors in their decision making processes.

Q. 14. Do governments foresee a policy to earmark funds in order to influence future changes to the general-use

| Interview questions posed to the Special Consultant providing an outside view | Q. 14a. Do government policies regarding funding influence further change to classrooms? Q. 14b. What effects do their decisions have on college space? Q. 14c. How do | -does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding | Assessment based on perception of decision making and policies processes and procedures |
Q. 14. This question was designed to probe whether consultants and governments interviewees foresee future funding changes. The question is open and allows interviewees to rework responses. It further allows them to comment on current behaviour with a view toward future behaviour.

Q. 15. When renovating or building new general-use classroom spaces who interviews the user in order to establish a needs analysis document in order to provide programming data? Interview questions posed to the Special Consultant providing an outside view

Q. 15a. Do administrators interview users? Q. 15b. What are their processes?

Q. 15. This question concerns the processes, policies and procedures employed by colleges when building new or renovating existing. It is a very practical question concerning common industry design practice. It probes how much the consultant knows about the process of design construction, how much colleges know and whether they follow standard processes. I was looking to discover whether a needs analysis was conducted for classroom design. The outcome of this question would indicate whether there was feedback from students and the academic communities. It would reflect the interviewees’ preference to flexible or inflexible classrooms.

Q. 16. When renovating or building new, who are the administrators that make the decisions concerning the classroom? Interview questions posed to the Special Consultant providing an outside view

Q. 16a. Who makes the decisions concerning space? Q. 16b. What are their qualifications?

Assessment based on perception of decision making and policies processes and procedures
| Q. 16 | This question asks who is involved when designing classrooms. The question seeks to discover who makes decisions and who is directly responsible for classroom space. |
| Q. 17 | When renovating or building new general-use classrooms, describe the process that occurs from identification of the need to build, through the implementation of the project to completion. |
| Q. 17. When renovating or building new general-use classrooms, | Interview questions posed to the Special Consultant providing an outside view |
| Q. 17a. What are the policies, procedures and processes in place? | Q. 17b. How are they administered? |
| Q. 17c. By whom? | -does not have an effect on decisions regarding general-use classrooms |
| -has a moderate effect on decisions regarding general-use classrooms | -plays a significant role on decisions regarding general-use classrooms |
| Assessment based on perception of decision making and policies processes and procedures |

Q. 17. This question seeks more details concerning processes. It probes the interviewee for greater details that previous questions have not requested. The purpose is to discover whether interviewees contradict themselves by responding with different information.

<p>| Q. 18 | When renovating or building new general-use classrooms do the processes and criteria differ or are they the same? |
| Q. 18a. Are the aforementioned always the same? | Q. 18b. Do they differ? |
| Q. 18c. How do they differ? | -does not have an effect on decisions regarding general-use classrooms |
| -has a moderate effect on decisions regarding general-use classrooms | -plays a significant role on decisions regarding general-use classrooms |
| Assessment based on perception of decision making and policies processes and procedures |</p>
<table>
<thead>
<tr>
<th>Q. 18. This question works with question 20 but probes for details concerning change to policies, processes and procedures. The purpose is to look for more detail and to discover whether interviewees contradict themselves by responding with different information.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Q. 19. When renovating or building new general-use classrooms, who is it that determines the programming?</strong></td>
</tr>
<tr>
<td>Interview questions posed to the Special Consultant providing an outside view</td>
</tr>
<tr>
<td>Q. 19a. Who are the decision makers?</td>
</tr>
<tr>
<td>Q. 19b. Is there programming in place?</td>
</tr>
<tr>
<td>Q. 19c. Who collects and acts on the programming?</td>
</tr>
<tr>
<td>-does not have an effect on decisions regarding general-use classrooms</td>
</tr>
<tr>
<td>-has a moderate effect on decisions regarding general-use classrooms</td>
</tr>
<tr>
<td>-plays a significant role on decisions regarding general-use classrooms</td>
</tr>
<tr>
<td>Assessment based on perception of decision making and policies processes and procedures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q. 19. This question works with question 21 but probes for details looking for change to policies, processes and procedures. The purpose is to look for more detail and to discover whether interviewees contradict themselves by responding with different information.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Q. 20. When research is conducted to determine changes required updating the general-use classroom, who participates?</strong></td>
</tr>
<tr>
<td>Interview questions posed to the Special Consultant providing an outside view</td>
</tr>
<tr>
<td>Q. 20a. Is there a mechanism for research?</td>
</tr>
<tr>
<td>Q. 20b. Do administrators follow research?</td>
</tr>
<tr>
<td>-does not have an effect on decisions regarding general-use classrooms</td>
</tr>
<tr>
<td>-has a moderate effect on decisions regarding general-use classrooms</td>
</tr>
<tr>
<td>-plays a significant role on decisions regarding general-use classrooms</td>
</tr>
<tr>
<td>Assessment based on perception of decision making and policies processes and procedures</td>
</tr>
</tbody>
</table>
Q. 20. This question is designed to discover whether research of any kind is conducted within the institutions. If research is conducted who conducts the research, who evaluates and how is it disseminated. This question also probes whether consultants read research papers and attend conferences to stay current. The question is probes the degree of current awareness.

Questions 21 through 28 were additional questions posed to the Government Consultants (Gov.1) (Gov.2). Appendix B.

<table>
<thead>
<tr>
<th>Q. 21. What part does Government play in the development of college space and interview questions posed to the Government Consultant providing an outside view</th>
<th>Q. 21a. What is the part? Q. 21b. Does it concern space?</th>
<th>-no table effect -some effect -very influential</th>
<th>Assessment based on perception of decision making and policies processes and procedures Examine, Lang, Hook and Cooke</th>
</tr>
</thead>
</table>

Q. 21. The question was designed to explore government influence on campus design. It probed the consultant’s knowledge concerning processes that might influence classrooms.

<table>
<thead>
<tr>
<th>Q. 22. How do government policies, processes and procedures influence administrative decisions. Interview questions posed to the Government Consultant providing an outside view</th>
<th>Q. 21a. What are the policies, processes and procedures?</th>
<th>-no table effect -some effect -very influential</th>
<th>Assessment based on perception of decision making and policies processes and procedures Examine, Lang, Hook and Cooke</th>
</tr>
</thead>
</table>

Q. 22. As with Q. 21, the question was designed to explore government influence on campus design. It probed the consultant’s knowledge concerning processes that might influence classrooms.

<table>
<thead>
<tr>
<th>Q. 23. What do governments consider their role in ensuring that campus space is appropriate in that space supports its main objective which is to support student success that is spaces are deliberate in delivering its mandates Additional Interview questions posed to Government</th>
<th>Q. 23a. Does the government directly influence general-use classrooms? Q. 23b. Does the government indirectly influence general-use classrooms? Q. 23. What is their role and how do they work with colleges?</th>
<th>-does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms -plays a significant role on decisions regarding general-use</th>
<th>Assessment based on perception of decision making and policies processes and procedures</th>
</tr>
</thead>
</table>
Q. 23. This question was designed to probe into the influence that government has on college’s campus design. The question probes their role and how do they work with colleges. The question uses specific language to guide the interviewee’s response.

| Q. 24. Does government underfunding of colleges become a priority in the decision making process that influences administrators of campus space to choose one type of general use classroom over another | Additional interview questions posed to Government | Q. 24. Explain ‘underfunding’? Q. 24b. Explain policies and processes leading to underfunding? -does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms -plays a significant role on decisions regarding general-use classrooms | Assessment based on perception of decision making and policies processes and procedures |

Q. 24. This question presumes that the government interviewees are aware of literature that indicates underfunding. It probes for a response to underfunding colleges and asks how they reconcile underfunding with campus space.

| Q. 25. Are government policies processes and procedures problematic and if they are do they in turn influence administrative decisions concerning campus built environments? | Additional interview questions posed to Government | Q. 25a. How do Government interviewees see their relationship to colleges Q. 25b. How do they see their policies, processes and procedures? Q. 25c. Is their influence positive or negative? -does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms -plays a significant role on decisions regarding general-use classrooms | Assessment based on perception of decision making and policies processes and procedures |
Q. 25. This question presumes that the government interviewees are aware of literature that indicates that policies, processes and procedures are problematic. The question probes their opinion regarding the behaviour of government as they relate to colleges and asks if the relationship influences college administration.

Q. 26. Do you know if college administrators make informed decisions framed in research about the space types used within their campuses?

Q. 26a. What is their attitude toward college administrators?
Q. 26b. Do they have concerns about decision making?

Assessment based on perception of decision making and policies processes and procedures

Q. 26. This question was designed to ask government representatives about the decisions made by colleges. It probes from their point of view whether they feel colleges make sound decisions. The question is based on literature that denotes the government need of accountability.

Q. 27. Do governments foresee a need to earmark funds in order to influence future changes to the general-use classrooms? Do you foresee that change in the future?

Q. 27a. Do Governments foresee changes?
Q. 27b. If they do than what do they foresee?

Assessment based on perception of decision making and policies processes and procedures

Q. 27. This question looks to the future and probes the interviewees to respond to future change. Literature indicates that technology is changing how we teach and this question probes the government interviewee’s for their awareness of future change to our institutions.
<table>
<thead>
<tr>
<th>Question</th>
<th>Interview questions posed to Government representatives</th>
<th>Q. 28a. Will there be future changes?</th>
<th>Assessment based on perception of decision making and policies processes and procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 28. Given time will model #1 classrooms be replaced with model #2 classrooms?</td>
<td>-does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms -plays a significant role on decisions regarding general-use classrooms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q. 28. This question looks to the future and probes the interviewees for their prediction of future change. Literature indicates that technology is changing how we teach and this question probes the interviewee’s awareness of future change to our institutions.

Questions 29 through 34 were additional questions posed to the Design (DSGN) and Furniture Consultants (DEAL).

<table>
<thead>
<tr>
<th>Question</th>
<th>Interview questions posed related to the acquisition of furniture tools.</th>
<th>Q. 29a. Recap question. Does the response sound different or does it contradict previous questions?</th>
<th>Assessment based on perception of decision making and policies processes and procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 29. Can you describe the purchasing and design approaches by colleges as they relate to policies, procedures and processes?</td>
<td>-does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms -plays a significant role on decisions regarding general-use classrooms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q. 29. This question asks whether they are aware of different approach to purchasing tools at different colleges or are they the same everywhere.

<table>
<thead>
<tr>
<th>Question</th>
<th>Interview questions posed to the</th>
<th>Q. 30a. Recap question. Does the response sound</th>
<th>Assessment based on perception of decision making</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 30 How often do colleges deviate</td>
<td></td>
<td>-does not have an effect on decisions</td>
<td></td>
</tr>
</tbody>
</table>

Q. 30. This question looks to the future and probes the interviewees for their prediction of future change. Literature indicates that technology is changing how we teach and this question probes the interviewee’s awareness of future change to our institutions.
<table>
<thead>
<tr>
<th>Question</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 30.</td>
<td>This question asks whether colleges deviate from purchasing standard inflexible general-use furniture. This question coordinates with the site visit that will verify factual information.</td>
</tr>
<tr>
<td>Q. 31.</td>
<td><em>Describe the processes that colleges use to procure teaching tools?</em></td>
</tr>
<tr>
<td>Q. 31a.</td>
<td><em>Recap question. Does the response sound different or contradict previous questions?</em></td>
</tr>
<tr>
<td>Q. 32.</td>
<td><em>How do college representatives learn about new teaching tools? Do they attend seminars?</em></td>
</tr>
</tbody>
</table>

### Table: Questions and Textual Content

<table>
<thead>
<tr>
<th>Question</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 30.</td>
<td>This question asks whether colleges deviate from purchasing standard inflexible general-use furniture. This question coordinates with the site visit that will verify factual information.</td>
</tr>
<tr>
<td>Q. 31.</td>
<td><em>Describe the processes that colleges use to procure teaching tools?</em></td>
</tr>
<tr>
<td>Q. 31a.</td>
<td><em>Recap question. Does the response sound different or contradict previous questions?</em></td>
</tr>
<tr>
<td>Q. 32.</td>
<td><em>How do college representatives learn about new teaching tools? Do they attend seminars?</em></td>
</tr>
</tbody>
</table>

### Table: Questions and Textual Content

<table>
<thead>
<tr>
<th>Question</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 30.</td>
<td>This question asks whether colleges deviate from purchasing standard inflexible general-use furniture. This question coordinates with the site visit that will verify factual information.</td>
</tr>
<tr>
<td>Q. 31.</td>
<td><em>Describe the processes that colleges use to procure teaching tools?</em></td>
</tr>
<tr>
<td>Q. 31a.</td>
<td><em>Recap question. Does the response sound different or contradict previous questions?</em></td>
</tr>
<tr>
<td>Q. 32.</td>
<td><em>How do college representatives learn about new teaching tools? Do they attend seminars?</em></td>
</tr>
</tbody>
</table>

### Table: Questions and Textual Content

<table>
<thead>
<tr>
<th>Question</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 30.</td>
<td>This question asks whether colleges deviate from purchasing standard inflexible general-use furniture. This question coordinates with the site visit that will verify factual information.</td>
</tr>
<tr>
<td>Q. 31.</td>
<td><em>Describe the processes that colleges use to procure teaching tools?</em></td>
</tr>
<tr>
<td>Q. 31a.</td>
<td><em>Recap question. Does the response sound different or contradict previous questions?</em></td>
</tr>
<tr>
<td>Q. 32.</td>
<td><em>How do college representatives learn about new teaching tools? Do they attend seminars?</em></td>
</tr>
</tbody>
</table>

### Table: Questions and Textual Content

<table>
<thead>
<tr>
<th>Question</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q. 30.</td>
<td>This question asks whether colleges deviate from purchasing standard inflexible general-use furniture. This question coordinates with the site visit that will verify factual information.</td>
</tr>
<tr>
<td>Q. 31.</td>
<td><em>Describe the processes that colleges use to procure teaching tools?</em></td>
</tr>
<tr>
<td>Q. 31a.</td>
<td><em>Recap question. Does the response sound different or contradict previous questions?</em></td>
</tr>
<tr>
<td>Q. 32.</td>
<td><em>How do college representatives learn about new teaching tools? Do they attend seminars?</em></td>
</tr>
</tbody>
</table>
discuss the advantages and disadvantages of tools? Do they come to your showroom to see new product? Do you take new product to them?

furniture tools.

effect on decisions regarding general-use classrooms -plays a significant role on decisions regarding general-use classrooms

Q. 32. This question examines whether college representatives conduct research when purchasing furniture tools. It questions whether colleges continue to purchase the same type of furniture and asks if they deviate in any way.

Q. 33. Regarding Government funds; Do you know whether the government limits funding for tools?

Interview questions posed to the furniture consultant related to the acquisition of furniture tools.

Q. 30a. How aware are consultants of Government Funding?

Q. 33. This question is designed to probe this interviewee for any government policies that are followed by colleges. It looks for whether the government is instrumental in ensuring inflexible classrooms which might be a factor in the design of space.

Q. 34. Do the subject colleges demonstrate a focus that is different concerning policies procedures and processes or are they consistent and

Interview questions posed to the furniture consultant related to the acquisition of furniture tools.

Q. 34a. What is the focus of the colleges? Q. 34b. Does the focus differ from the Strategic Plan?

-does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms -does not have an effect on decisions regarding general-use classrooms -has a moderate effect on decisions regarding general-use classrooms

Assessment based on perception of decision making and policies processes and procedures

Assessment based on perception of decision making and policies processes and procedures
Q. 34. This question asks whether they are aware of differing focuses at colleges or are they the same everywhere. The question also explores whether the focus at each of the college differs from the Strategic Plan. The question drives at the exploration of policies, processes and procedures in place to assess and acquire general-use classroom tools and in particular flexible furniture used by colleges. The exploration included comments concerning the quality of product, funding available and attitudes of Academics who appear to be pivotal participants when determining educational environments.
Letter Requesting Administrative Consent from President and CEO at Colleges

OISE

ONTARIO INSTITUTE FOR STUDIES IN EDUCATION

UNIVERSITY OF TORONTO

Letter Requesting Administrative Consent

Date [ ]

To: [each of the Presidents & CEO’s at Three subject Colleges that are participants in this study, Refer to Appendix B for names],

Dear [CEO & President]

I am a graduate student, pursuing the credential of Doctor of Philosophy, Higher Education - Department of Theory and Policy Studies in Education at OISE, University of Toronto and am planning a research project that will involve interviews with the following administrators at your college as well as a site visit to one of your campuses.

Interviews will be with:

- V.P Academic
- Director of Facilities
- Director of Purchasing

A site visit will be conducted at the following campus:

[Location of campus here]

In order to begin the project I require your written consent in accordance with the following that reflects the Ethics Protocol in of the University of Toronto/OISE.

The purpose of the present study is to explore how decision makers at three colleges in Ontario deal with pressures and trends in favour of building alternative classroom types. The research explores factors that influence the decisions of administrators to retain current classroom models.

Administrators within three colleges will be asked to outline their views concerning their deployment of general-use classrooms. Questions will explore processes and policies that influence learning environment design. In addition to the interviews I will conduct a site visit to one of your campuses. Also included in the study will be the assessment of the Strategic Plans for all three colleges.

One of the two data collection process employed for the purpose of this research study involves individual face-to-face interviews with the aforementioned administrators. Each interview
will not exceed one hour in length. During the interview participants will be asked general questions regarding their understanding of factors that they consider influence classroom design. The interview will include a pictorial representation of what this researcher defines as classroom types. Subjects will be well informed about the nature of the study and their participation, including the assurance that they may withdraw at any time without consequence, penalty or judgment. In addition any of the individuals interviewed may request that any information, whether in written form or audiotape, be eliminated from the project. Participants will at no time be judged or evaluated and will at no time be at risk or harmed.

The second data collection process involves a site visit to one of your campus. The purpose is to verify the educational model used for general-use classrooms. This exploration involves written permission to conduct a site visit which will be done by this researcher. The mechanics of the operation requires a glance into your classrooms within the specified campus. There will not be contact with students or faculty and the site visit will not interrupt classes that are in session. This researcher will coordinate the logistics of this activity with the Director of Facilities at your institution. Upon your approval a letter will be forwarded to the Director of Facilities informing them of the process and requesting their permission with coordination details to follow.

The information gathered from interviews and the site visit will be kept in strict confidents and stored at a secure location. Hard copy will be secured in file cabinets and electronic copy will be secured within a password protected computer. Access to all materials is only possible by this researcher. All information will be reported in such a way that individual persons cannot be identified. All data collected will be used for the purposes of a PhD thesis and perhaps for subsequent research articles. All raw data (i.e. transcript, field notes) will be destroyed five years after the completion of the study.

If you agree, please sign the letter below and return it to me in the postage paid envelope provided. If you have any questions, please feel free to contact me at (416)783-1307 or at marilyn.teitelbaum@humber.ca. You may also contact my supervisor: Dr. Peter Dietsche, Ph.D., Wm. G. Davis Chair in Community College Leadership, Assistant Professor, Higher Education, Department of Leadership, Higher and Adult Education, OISE/UT, 252 Bloor St. West, Toronto, ON Canada M5S 1V6, (416) 978-1217. Finally, you may also contact the U of T Office of the Research Ethics for questions about your rights as a research participant at ethics.review@utoronto.ca or (416) 946-3273.

Thank you in advance for your cooperation and support.

Sincerely,
Marilyn Teitelbaum, M.A. Ed
Professor and Coordinator
Applied Technology Department
Humber Institute of Technology & Advanced Learning
marilyn.teitelbaum@humber.ca
416.846.1307

Signature
Date
Appendix C

Informed Consent Letter Requesting a Site Visit forwarded to Colleges

OISE

ONTARIO INSTITUTE FOR STUDIES IN EDUCATION

UNIVERSITY OF TORONTO

Date [ ]

To: [authorized person –see names below- at each of the three colleges that have given consent in accordance with each of the College Presidents who have the authority to grant permission to conduct a site visit at each of the three subject colleges],

The purpose of the research study is to explore how decision makers deal with pressures and trends in favour of building alternative classroom types. The research explores factors that influence the decisions of administrators to retain the current classroom models. Administrators within three colleges, government representatives and consultants will be asked to outline their views concerning the general-use classrooms on three college campuses. This research explores how decision makers deal with pressures and trends in favour of building other classroom types. The research asks what factors influence their decisions to retain the current classroom model. Administrators within three colleges, government representatives and consultants will be asked to outline their views concerning the general-use classrooms on college campuses. Questions will explore processes and policies that influence educational environment design.

To gain deeper incite, this research requires a site visit to each of the subject campuses. Access to the college campus will facilitate a site review to assess the quantity of classrooms as well as the types of classroom models used on campus.

The campus designated for this research is [identify the campus]

One of the two data collection process for this research involves a face-to-face interview of approximately one hour. The second data collection process involves a site visit to your campus. The purpose of the site visit is to verify the educational model used for general-use classrooms. This exploration requires written permission by your institution to conduct the visit by this researcher. Written permission has been granted by your President & CEO. Refer to a copy of the signed letter attached. I request your permission as well as your help with the coordination of details.

The methodology of data collection requires a glance into your classrooms within the specified campus. At no time will there be contact with students or faculty and the site visit will not interrupt classes. This researcher will coordinate the logistics of this activity with you in order to satisfy all of your requirements to include, but not be limited to, the determination of a date, time and coordination with your campus security team.

The information gathered from the site visit will be kept in strict confidents and stored at a secure location. Hard copy will be secured in file cabinets and electronic copy will be secured within a password protected computer. Access to all materials is only possible by this researcher. All information will be reported in such a way that individual persons cannot be identified. All data collected will be used for the purposes of this PhD thesis and perhaps for subsequent research articles. All raw data (i.e. transcript, field notes) will be destroyed five years after the completion of the study.
This study will be carried out in Ontario under the supervision of Dr. Peter Dietsche Ph.D., Wm. G. Davis Chair in Community College Leadership, Assistant Professor, Higher Education Department of Leadership, Higher and Adult Education, OISE/UT.

The data for this study is being collected for the purpose of PhD thesis and perhaps for subsequent research article and is in accordance with the Ethics Protocol directives of the University of Toronto/OISE.

Participation in this study is voluntary. You may at any time withdraw from the site visit process. You may request that any information gathered for the purpose of the site visit be eliminated from the project. You are free to ask any questions about the research and your involvement with it and may request a summary of the findings of the study.

If you have any questions, please feel free to contact me at (416)783-1307 or at marilyn.teitelbaum@humber.ca. You may also contact my supervisor: Dr. Peter Dietsche Ph.D., Wm. G. Davis Chair in Community College Leadership, Assistant Professor, Higher Education, Department of Leadership, Higher and Adult Education, OISE/UT, 252 Bloor St. West, Toronto, ON Canada M5S 1V6, (416) 978-1217.

You can have access to the final report which will be located in the OISE/UT thesis collection which can be accessed electronically in the University of Toronto Research Repository (T Space) at: https://tspace.library.utoronto.ca/handle/1807/9944.

Finally, you may also contact the U of T Office of the Research Ethics for questions about your rights as a research participant at ethics.review@utoronto.ca or (416) 946-3273.

Thank you in advance for your participation.

Marilyn Teitelbaum
PhD Candidate, Community College Leadership
Higher and Adult Education
OISE/ University of Toronto
Telephone; (416)-783-1307
Email; marilyn.teitelbaum@humber.ca

Dr. Peter Dietsche
Wm. G. Davis Chair in Community College Leadership,
Assistant Professor, Higher Education, Department
of Leadership, Higher and Adult Education, OISE/UT,
252 Bloor St. West, Toronto,
ON Canada M5S 1V6,
Telephone; (416) 978-1217
Email; peter.dietsche@utoronto.ca

By signing below, you are indicating that you are willing to participate in the study, you have received a copy of this letter, and you are fully aware of the conditions above.

Name: ___________________________ School: ___________________________

Signed ___________________________ Date: ___________________________

Please keep a copy of this form for your records.
Appendix D

Informed Consent Letter Requesting an Interview

OISE

ONTARIO INSTITUTE FOR STUDIES IN EDUCATION

UNIVERSITY OF TORONTO

Date [      ]

To: [each of the participants],

The following reflects the Ethics Protocol in accordance with the University of Toronto/OISE.

The purpose of this study is to explore how decision makers deal with pressures and trends in favour of building alternative classroom types. The research explores factors that influence the decisions of administrators to retain the current classroom models. Administrators within three colleges, government representatives and consultants will be asked to outline their views concerning the general-use classrooms on three college campuses. Questions will explore processes and policies that influence learning environment design. In addition to the interviews I will conduct a site visit to one of your campuses. Also included in the study will be the assessment of the Strategic Plans for all three colleges.

This study will be carried out in Ontario under the supervision of Dr. Peter Dietsche Ph.D., Wm. G. Davis Chair in Community College Leadership, Assistant Professor, Higher Education Department of Leadership, Higher and Adult Education, OISE/UT.

The data collected for the purpose of PhD thesis and perhaps for subsequent research article and is in accordance with the Ethics Protocol directives of the University of Toronto/OISE.

The data collection process for this research involves a face-to-face interview of approximately one hour. During the interview you will be asked general questions regarding your understanding of factors that you consider influence classroom design. The interview will include a pictorial representation of what the researcher defines as classroom types. Questions will include your views concerning the education environment and its place in history. Questions will also include your understanding of how college culture has played a part in the formation of space types. You will be asked to comment on government interaction, processes and fiscal factors that have and continue to influence the physicality of the classroom. As the interview proceeds I may ask questions for clarification or further understanding but my part will be mainly to listen to you speak about your views experiences and the reasons you believe the things you do.

Each interview will be audio taped and later transcribed on paper. You have the choice of declining to have the interview taped. Your typed transcript will be forwarded to you to read and at that time you have the opportunity to address any issues or concerns. You will be asked to make changes and to correct any misinterpretations that could result from transcribing the interview. The material will be corrected and returned to you until you are satisfied with the results. When you are satisfied you will be asked to sign a copy for my records. The information obtained in the interview will be kept in strict confidence and stored at a secure location. To the best of my ability your identity will not be disclosed and to facilitate that measure you will be assigned a number that will correspond to you interview and transcription. All information will be
reported in such a way that individual persons cannot be identified. All raw data (i.e. transcripts, field notes) will be destroyed five years after completion of the study. After the interview I will write brief notes that will be used to assist me in remembering the surroundings of the interview (i.e., the characteristics of the site).

Participation in this study is voluntary. You may at any time refuse to answer a question or withdraw from the interview process. You may request that any information, whether in written form or audiotape, be eliminated from the project. At no time will value judgments be placed on your responses nor will any evaluation be made of your effectiveness as an administrator. Finally, you are free to ask any questions about the research study and your involvement with it. You may request a summary of the findings of the study.

If you have any questions, please feel free to contact me at (416)783-1307 or at marilyn.teitelbaum@humber.ca. You may also contact my supervisor: Dr. Peter Dietsche Ph.D., Wm. G. Davis Chair in Community College Leadership, Assistant Professor, Higher Education, Department of Leadership, Higher and Adult Education, OISE/UT, 252 Bloor St. West, Toronto, ON Canada M5S 1V6, (416) 978-1217.

You can have access to the final report which will be located in the OISE/UT thesis collection which can be accessed electronically in the University of Toronto Research Repository (T Space) at https://tspace.library.utoronto.ca/handle/1807/9944

Finally, you may also contact the U of T Office of the Research Ethics for questions about your rights as a research participant at ethics.review@utoronto.ca or (416) 946-3273.

Thank you in advance for your participation.

Marilyn Teitelbaum
PhD Candidate, Community College Leadership
Higher and Adult Education
OISE/ University of Toronto
Telephone; (416)-783-1307
Email; marilyn.teitelbaum@humber.ca

Dr. Peter Dietsche
Wm. G. Davis Chair in Community College Leadership,
Assistant Professor, Higher Education, Department of Leadership, Higher and Adult Education, OISE/UT,
252 Bloor St. West, Toronto,
ON Canada M5S 1V6,
Telephone; (416) 978-1217
Email; peter.dietsche@utoronto.ca

By signing below, you are indicating that you are willing to participate in the study, you have received a copy of this letter, and you are fully aware of the conditions above

Name: ____________________________ School: ____________________________

Signed ____________________________ Date: ____________________________

Please initial if you agree to have your interview audio taped: __________
Please keep a copy of this form for your records.
Appendix E

Interview Guide: College Administrators.

Vice President Academic, Director of Facilities, Manager of Purchasing

Script:

My Name is Marilyn Teitelbaum. To begin, I would like to thank you for responding to my letter dated ............ when you generously agreed to take time out of your busy schedule for this interview for my Ph.D. thesis.

Background of this study:

In one of the colleges that I have studied to date 12 percent of teaching space is devoted to hierarchic formatted classrooms. At least 50% of instruction happens within these general-use classroom spaces. This includes general-use classrooms that have been renovated or are newly built. My thesis question asks why this model dominates and why not one that differs?

I have two pictures that illustrate what I mean by general-used classrooms.

The picture facing you on the left side of your desk is labeled classroom model #1 which is hierarchic in format. Desks and chairs are in row-and-column format, all students face forward toward the teacher who occupies the front of the room. The projector, vertical writing surfaces are located in the front of the classroom. Pedagogy is conducive to lectures.

The picture on your right is labeled classroom model #2 and this is the classroom model which is flexible in format. Desks and chairs are movable to suit any pedagogy, the teacher and students are not oriented to a direction. There are several vertical writing surface options. Additionally, computer stations are located throughout the space. Pedagogy is conducive to multiple teaching types.

My thesis explores factors that influence administrators of campus space to build either hierarchic or flexible general-use classrooms.

I am exploring the question; What factors become priorities in the decision making processes that influence administrators of campus space to choose one type of general-use classroom over another?

Q.1: If you were asked to teach 35 college students for a semester, based on your preference to a pedagogy, which one of the two model spaces would you choose?

The ECS February report 2007 When Efficiency Becomes a Liability, page i:

“Colleges must deliver relevant programs that fit within an evolving, global context. They must create and maintain quality learning environments that reflect current academic delivery practices and the standards of industry particularly for equipment and technology.”

With the aforementioned in mind please answer the following questions:

Q.2. When building new or renovating general-use classrooms, what factors are considered when deciding between classroom model types?

Q.3. When renovating or building new, who are the administrators that make the decision concerning the classroom model type?

Q.4. When renovating or building new general-use classrooms, describe the process that occurs from identification of the need to build, through the implementation of the project to completion.

Q.5. When renovating or building new general-use classrooms do the processes and criteria differ or are they the same?
Q.6. When renovating or building new general-use classrooms, who would determine the programming?

Q.7. Who determines the changes required to update the general-use classroom?

Q.8. When research is conducted to determine changes required to update the general-use classroom, who participates?

Q.9. Given time, will model #1 classrooms be replaced with model #2 classrooms?

Q.10. What do governments consider their role in ensuring that campus space is appropriate in that space supports its main objective which is to support student success? That is spaces are deliberate in delivering its mandates which is to support both education and growth.

CLOSING

Do you have any additional comments that you wish to add?

I will type up our conversation and will forward a copy for your approval. You have the right to make all changes. The transcript will not be used until you are satisfied with the content and you have signed off on the final transcript.

Thank you for your time.
Appendix F

Interview Guide; Government and Education Specialist

Script:

My Name is Marilyn Teitelbaum. To begin, I would like to thank you for responding to my letter dated ............. when you generously agreed to take time out of your busy schedule for this interview for my Ph.D. thesis.

Background of this study:

In one of the colleges that I have studied to date 12 percent of teaching space is devoted to hierarchic formatted classrooms. At least 50% of instruction happens within these general-use classroom spaces. This includes general-use classrooms that have been renovated or are newly built. My thesis question asks why this model dominates and why not one that differs?

I have two pictures that illustrate what I mean by general-used classrooms.

The picture facing you on the left side of your desk is labeled classroom model #1 which is hierarchic in format. Desks and chairs are in row-and-column format, all students face forward toward the teacher who occupies the front of the room. The projector, vertical writing surfaces are located in the front of the classroom. Pedagogy is conducive to lectures.

The picture on your right is labeled classroom model #2 and this is the classroom model which is flexible in format. Desks and chairs are movable to suit any pedagogy, the teacher and students are not oriented to a direction. There are several vertical writing surface options. Additionally, computer stations are located throughout the space. Pedagogy is conducive to multiple teaching types.

My thesis explores; What factors become priorities in the decision making processes that influence administrators of campus space to choose one type of general-use classroom over another?

ASK AT BOTH GROUPS

Q.1. If you were asked to teach 35 college students for a semester, based on your preference to a pedagogy, which one of the two model spaces would you choose?

The ECS February report 2007 When Efficiency Becomes a Liability, page i:

“Colleges must deliver relevant programs that fit within an evolving, global context. They must create and maintain quality learning environments that reflect current academic delivery practices and the standards of industry particularly for equipment and technology.”

With the aforementioned in mind please answer the following questions:

Q.2. When building new or renovating general-use classrooms, what factors are considered when deciding between classroom model types?

Q.3. When renovating or building new, who are the administrators that make the decision concerning the classroom model type?

Q.4. When renovating or building new general-use classrooms, describe the process that occurs from identification of the need to build, through the implementation of the project to completion.
Q.5. When renovating or building new general-use classrooms do the processes and criteria differ or are they the same?

Q.6. When renovating or building new general-use classrooms, who would determine the programming?

Q.7. Who determines the changes required to update the general-use classroom?

Q.8. When research is conducted to determine changes required to update the general-use classroom, who participates?

Q.9. Given time, will model #1 classrooms be replaced with model #2 classrooms?

Q.10. What do governments consider their role in ensuring that campus space is appropriate in that space supports its main objective which is to support student success? That is spaces are deliberate in delivering its mandates which is to support both education and growth.

ASK THE EDUCATION SPECIALIST

Q.11. Does government funding of colleges become a priority in the decision making process that influences administrators of campus space to choose one type of general-use classroom over another?

Q.12. Are government policies, processes and procedures problematic and if they are do they in turn influence administrative decisions concerning campus built environments?

Q.13. Do you know if college administrators make informed decisions about the kind of space type used for general-use classrooms within their campuses?

Q.14. Do governments foresee a need to earmark funds in order to and influence future changes to the general-use classrooms?

Q.15. When renovating or building new general-use classroom spaces who interviews the user in order to establish a needs analysis document in order to provide programming data?

Q.16. When renovating or building new, who are the administrators that make the decisions concerning classroom model types?

Q.17. When renovating or building new general-use classrooms, describe the processed that occurs from identification of the need to build through the implementation of the project to completion.

Q.18. When renovating of building new general-use classrooms do the processes and criteria differ of are they the same?

Q.19. When renovating of building new general-use classrooms who is it that determines the programming?

Q.20. When research is conducted to determine changes required to update the general-use classroom, who participates?

ASK THE GOVERNMENT REPRESENTATIVES

Q.21. What part does government play in the development of college space?
Q.22. How do government processes, processed and procedures influenced administrative decisions?

Q. 23. What do governments consider their role in ensuring that campus space is appropriate in that space supports its main objective which is to support student success that is spaces are deliberate in delivering its mandates which is to support both education and growth?

Q.24. Does government underfunding of colleges become a priority in the decision making process that influences administrators of campus space to choose one type of general-use classroom over another?

Q.25; Are government policies, processes and procedures problematic and if they are do they in turn influence administrative decisions concerning campus built environments?

Q.26. Do you know if college administrators make informed decisions framed in research about the space types used within their campuses?

Q.27. Do governments foresee a need to earmark funds in order to influence future changes to the general-use classrooms? Do you foresee that change in the future?

Q.28. Given time, will model #1 classrooms be replaced with model #2 classrooms?

CLOSING

Do you have any additional comments that you wish to add?

*I will type up our conversation and will forward a copy for your approval. You have the right to make all changes. The transcript will not be used until you are satisfied with the content and you have signed off on the final transcript.*

*Thank you for your time.*
Appendix G

Interview Guide; Designer and Manufacturer/Dealer

Script:

My Name is Marilyn Teitelbaum. To begin, I would like to thank you for responding to my letter dated ............. when you generously agreed to take time out of your busy schedule for this interview for my Ph.D. thesis.

Background of this study:

In one of the colleges that I have studied to date 12 percent of teaching space is devoted to hierarchic formatted classrooms. At least 50% of instruction happens within these general-use classroom spaces. This includes general-use classrooms that have been renovated or are newly built. My thesis question asks why this model dominates and why a model type that differs?

I have two pictures that illustrate what I mean by general-used classrooms.

The picture facing you on the left side of your desk is labeled classroom model #1 which is hierarchic and inflexible in format. Desks and chairs are in row-and-column format, all students face forward toward the teacher who occupies the front of the room. The projector, vertical writing surfaces are located in the front of the classroom. Pedagogy is conducive to lectures.

The picture on your right is labeled classroom model #2 and this is the classroom model which is flexible in format. Desks and chairs are movable to suit any pedagogy, the teacher and students are not oriented to a direction. There are several vertical writing surface options. Additionally, computer stations are located throughout the space. Pedagogy is conducive to multiple teaching types.

My thesis explores what factors influence administrators of campus space to build either hierarchic inflexible or flexible general-use classrooms.

I am exploring the question: What factors become priorities in the decision making processes that influence administrators of campus space to choose one type of general-use classroom over another?

ASK AT BOTH GROUPS

Q.1. If you were asked to teach 35 college students for a semester, based on your preference to a pedagogy, which one of the two model spaces would you choose?

The ECS February report 2007 When Efficiency Becomes a Liability, page i:

“Colleges must deliver relevant programs that fit within an evolving, global context. They must create and maintain quality learning environments that reflect current academic delivery practices and the standards of industry particularly for equipment and technology.”

With that in mind please answer the following questions:

Q.2: When building new or renovating general-use classrooms, what factors are considered when deciding between classroom model types?

Q.3: When renovating or building new, who are the administrators that make the decision concerning the classroom model type?
Q.4: When renovating or building new general-use classrooms, describe the process that occurs from identification of the need to build, through the implementation of the project to completion.

Q.5: When renovating or building new general-use classrooms do the processes and criteria differ or are they the same?

Q.6: When renovating or building new general-use classrooms, who would determine the programming?

Q.7. Who determines the changes required to update the general-use classroom?

Q.8. When research is conducted to determine changes required to update the general-use classroom, who participates?

Q.9. Given time, will model #1 classrooms be replaced with model #2 classrooms?

Q.10. What do governments consider their role in ensuring that campus space is appropriate in that space supports its main objective which is to support student success? That is spaces are deliberate in delivering its mandates which is to support both education and growth.

ASK ADDITIONAL QUESTIONS TO THE DESIGNER AND FURNITURE DEALER

Q.29: Can you describe the policies, procedures and processes for the development of classroom?

Q.30: How often do they deviate from the space products used for general-use classrooms?

Q.31: Describe the processes that collets use to procure teaching tools?

Q.32: How do college representatives learn about new teaching tools?

Q.33: Regarding Government funds: Do you know whether the government limits funding for tools?

Q.34: Do the colleges demonstrate a focus that is different concerning policies, processes and procedures or are they consistent and the same?

CLOSING

Do you have any additional comments that you wish to add?

I will type up our conversation and will forward a copy for your approval. You have the right to make all changes. The transcript will not be used until you are satisfied with the content and you have signed off on the final transcript.

Thank you for your time.
Appendix H

Thank You Letter for all participants wishing to withdraw.

OISE

ONTARIO INSTITUTE FOR STUDIES IN EDUCATION

UNIVERSITY OF TORONTO

Date [   ]

To: [person or persons]:

Dear,

Participation in this study is voluntary and you have chosen to withdraw.

The data for this study is being collected in accordance with the Ethics Protocol directives of the University of Toronto/OISE. It is being collected for the purpose of a PhD thesis and perhaps for a subsequent research article. That said you have requested that your contributed information should be eliminated from the project.

This will be done immediately. All hard copy data will be shredded. All audio transcripts will be erased. Notice of your withdrawal will be forwarded to my supervisor Dr. Peter Dietsche Ph.D., Wm. G. Davis Chair in Community College Leadership, Assistant Professor, Higher Education, Department of Leadership, Higher and Adult Education, OISE/UT

If you have any questions, please feel free to contact me at (416)783-1307 or at marilyn.teitelbaum@humber.ca. You may also contact my supervisor: Dr. Peter Dietsche Ph.D., Wm. G. Davis Chair in Community College Leadership, Assistant Professor, Higher Education, Department of Leadership, Higher and Adult Education, OISE/UT, 252 Bloor St. West, Toronto, ON Canada M5S 1V6, (416) 978-1217.

Finally, you may also contact the U of T Office of the Research Ethics for questions about your rights as a research participant at ethics.review@utoronto.ca or (416) 946-3273.

Thank you for your past participation in this project.

Regards,

Marilyn Teitelbaum

PhD Candidate, Community College Leadership
Higher and Adult Education
OISE/ University of Toronto
Telephone: (416)-783-1307
Email; marilyn.teitelbaum@humber.ca