Evidence Based Design: Exploring Research, Education, and Application in Interior Design

Nemeth, Cynthia

http://hdl.handle.net/11023/1342

Downloaded from PRISM Repository, University of Calgary
UNIVERSITY OF CALGARY

Evidence Based Design: Exploring Research, Education, and Application in Interior Design

by

Cynthia Nemeth

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ENVIRONMENTAL DESIGN

FACULTY OF ENVIRONMENTAL DESIGN

CALGARY, ALBERTA

JANUARY, 2014

© Cynthia Nemeth 2014
The purpose of this thesis is to explore the role of continuing professional education as a vehicle for linking research to professional interior design practice. Evidence-based design is an approach which enhances an established design process by calling upon the practitioner to create solutions in the built environment based on credible research. However, the role of research is currently not well understood and generally not the focus of professional continuing education courses in interior design. The objective of the study is to demonstrate a ‘prototype’ evidence-based design continuing professional education unit for ID practitioners. The results of the exploration show that practitioners consider research-based elements valuable in design practice given projects with a supportive client. Using a research approach in practice contributes to a culture of professional inquiry, and increased understanding of evidence-based design concepts can add value to the unique professional knowledge base used in ID professional practice.
acknowledgements

I’d like to thank those who provided guidance and encouragement throughout my process of discovering, exploring, and mastering a new way of understanding my profession.
table of contents

abstract ........................................... ii
acknowledgements ................................ iii
table of Contents ................................ iv
list of Figures ..................................... viii
list of Abbreviations ................................ ix

chapter 1: INTRODUCTION............................. 1
   Introduction
      An Overview of Interior Design practice
      The Profession of Interior Design
      A Role for Research in Interior Design Practice
      Purpose & Objectives
      Document Organization

chapter 2: LITERATURE REVIEW..................... 10
   Key Findings
      Design Process
      Reflective Practice
      Knowledge
      Theory
      Research
      Research in Education
      Research in Interior Design Practice
      Evidence-Based Design
      Continuing Education (Adult Learning)
      Application of Key Findings
chapter 3: PROTOTYPE DESIGN

Approach

Methods

Limitations and Bias

Contextual Framework

Information from Other Sources

Step 1: Literature-Based Course Design Criteria

Identification of Prototype Design Criteria

The Design Process

Application through a Studio Exercise

Identity & Professionalism

Knowledge

Theory

Research

Evidence-Based Design

Learner Audience

What Other Information is Needed to Develop the Prototype?

Existing Courses on Evidence-Based Design

Case Studies: Project De-Construction & Re-Construction

The Continuing Professional Education Process

Step 2: Prototype v1.0

Analysis

Design

Development

Implementation

Evaluation

Other Considerations

Result
Step 3: Consultant Feedback

   Interview with Education Specialists

   Analysis of Feedback I – Education Specialists

Step 4: Prototype v2.0

   Multi-Session Course vs. One Extended Session

   Background Reading

   Reduce Length of Course

   Intermediate vs. Advanced Level Course Content

   Preparation for Testing

chapter 4: DEMONSTRATION................................................................. 110

   Methods

   Limitations and Bias

   Participant Recruitment

   Course Demonstration

   Feedback II – Design Specialists

chapter 5: ASSESSMENT OF DEMONSTRATION................................. 123

   Reflection

   Discussion

      Course Content Evaluations

      Course Delivery

   Lessons Learned

   Future Revisions

   Reflection
chapter 6: IMPLICATIONS & NEXT STEPS................................................................. 138

Implications of Considering Research as Part of Interior Design

Research in ID Practice

Research in ID Education

Research in the ID Profession

Next Steps

Final Thoughts

BIBLIOGRAPHY........................................................................................................ 146

APPENDICIES

A. Background information on the professional path for interior design practitioners.

B. Course Design – v2.0

C. Recruitment Documents

   a. University of Calgary Conjoint Faculties Research Ethics Board approval certificate

   b. Sample letter to Education Specialists

   c. IDA Newsletter advert (for course participants)

   d. Sample letter to course participants

   e. Information Letter to the Mount Royal Interior Design Alumni Committee

   f. Course evaluation questionnaire

   g. Consent form: Education Specialists

D. Key Informant Group 2 - Summary of Participant Feedback
list of figures

Fig. 1-1 Linking Research to Practice - by author
Fig. 1-2 Identifying Links Between Major Concepts
Fig. 2-1 Example of Healthcare Design (Photo)
Fig. 2-2 Example of Corporate Office Design (Photo)
Fig. 2-3 Example of Education Design (Photo)
Fig. 2-4 Example of Retail Design (Photo)
Fig. 3-1 Conceptual Framework for Demonstration Prototype - by author
Fig. 3-2 The Design Process - by author
Fig. 3-3 Project De-Construction - by author
Fig. 3-4 Project Re-Construction - by author
Fig. 3-5 Comparative Analysis of De-Construction / Re-construction Exercise - by author
Fig. 3-6 Visual Interpretation of perceived time spent in each scenario expressed in units - by author
Fig. 3-7 Visual Interpretation of perceived overlaps of phases over time - by author
Fig. 3-8 Visual Interpretation of perceived increase in time spent on projects with an EBD approach - by author
Fig. 3-9 Visual Interpretation of perceived increase in complexity shown in a visual format - by author
Fig. 3-10 Comparison of CEU content - by author
Fig. 3-11 Comparison of Design process and ADDIE Model for Instructional Design - by author
Fig. 3-12 Preliminary Concept Map of Possible Course Content Areas - by author
Fig. 3-13 Preliminary Sketch of What the Course Would Look Like - by author
Fig. 3-14 Comparison of IDCEC CEU levels and Bloom’s Taxonomy - by author
Fig. 3-15 Preliminary course Development Outline - by author
Fig. 3-16 Sketch of Considered Revisions to the Prototype - by author
Fig. 3-17a Key Informant Comment Areas A - by author
Fig. 3-17b Key Informant Comment Areas B - by author
Fig. 3-17c Key Informant Comment Areas C - by author
Fig. 4-1 Learners’ Response to Class Activity - by author
Fig. 5-1 Course Demonstration Evaluation
Fig. 5-2 Future Course Revisions
Fig. A-1 CEU Survey (2013)
### List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASID</td>
<td>American Society of Interior Designers</td>
</tr>
<tr>
<td>CEU</td>
<td>Continuing Education Unit</td>
</tr>
<tr>
<td>CIDA</td>
<td>Council for Interior Design Accreditation</td>
</tr>
<tr>
<td>EBD</td>
<td>Evidence-Based Design</td>
</tr>
<tr>
<td>ID</td>
<td>Interior Design</td>
</tr>
<tr>
<td>IDA</td>
<td>Interior Designers of Alberta</td>
</tr>
<tr>
<td>IDC</td>
<td>Interior Designers of Canada</td>
</tr>
<tr>
<td>IDCEC</td>
<td>Interior Design Continuing Education Council</td>
</tr>
<tr>
<td>IDEC</td>
<td>Interior Design Educators Council</td>
</tr>
<tr>
<td>IIDA</td>
<td>International Interior Designers Association</td>
</tr>
<tr>
<td>LEED</td>
<td>Leadership in Energy and Environmental Design</td>
</tr>
<tr>
<td>NCIDQ</td>
<td>National Council for Interior Design Qualifications</td>
</tr>
</tbody>
</table>
INTRODUCTION

*We do not debate enough in our own profession about how we do what we do, what underlying values govern our design decisions, and what the underlying values and meanings are within the philosophies, constructs, and knowledges we seek to codify.* Tiiu Poldma¹ (2006:ix)

**Introduction**

The researcher is a practicing interior designer with experience in commercial design projects. This experience offered an opportunity to apply practical skills into the research at hand. When new concepts are explored, innovative methods for exploration and collecting data such as a reflective exercise of the researcher's professional experience, are required as was the case for this study.

**An Overview of Interior Design Practice**

Professional practice in Interior Design (ID) focuses on creating and constructing interior spaces in the built environment that respond to user needs. For example, commercial, institutional, and private clients engage professional ID practitioners in creating a wide range of interior spaces

with dedicated functions such as airports, hotels, restaurants, retail stores, hospitals, and private residences. ID practitioners work across different scales ranging from small residential spaces to the largest of public and commercial spaces. Given the nature of the work involved, professional interior designers work with a range of other architectural design, engineering, construction, and other specialized professionals, employing functional, technical, and artistic knowledge. In addition to this fundamental knowledge requirement, knowledge of human needs and behaviour is critical to create spaces and experiences that respond to a wide range of public and private users. These behavioural, cultural, aesthetic, cognitive, ergonomic, physical, and emotional wellbeing aspects of interior environments are crucial given the significant role that interior space plays in the daily economic and social life of millions of people.

To date North American ID education has provided fundamental training through diplomas, undergraduate, and graduate programs approved by the Council for Interior Design Accreditation (CIDA). The traditional learning environment for interior design involves a combination of lecture and studio where collaboration with peers and one-on-one interaction with instructors takes place. This typical learning method may be considered a "signature pedagogy" as described by Shulman (2005) as it is the fundamental basis for practice preparation shared by all ID education programs. While a studio setting continues to be the main work environment in practice, continuing education throughout a designer's career takes on a different form, out of the studio and a less interactive atmosphere. The completion of Continuing Education Units (CEU's) is arranged primarily through the Interior Design Continuing Educator's Council (IDCEC) and is intended mainly for credential maintenance. Practice licensure and regulation is managed through various regional and national associations. Some practitioners maintain a connection to undergraduate/graduate education by becoming instructors and sometimes researchers within academia. In North America, the discipline of ID seeks professional credibility through education, examination, experience, and legal registration.
In Canada this process is guided by the Interior Designers of Canada (IDC) who work in chorus with the standards that are set for education curricula and accreditation by CIDA and the National Council of Interior Design Qualifications (NCIDQ). Despite these guidelines, ID practice varies from firm to firm and in order to maintain a successful practice, interior designers must balance a cognitive and theoretical approach of pursuing solutions to design problems, with the practicalities of adhering to time and budget constraints, client wants and needs, and other business factors. As such, practice tends to focus more on the pragmatic needs and procedures that serve clients and less on design theory and research in the early project planning phases of the design process.

The Profession of Interior Design

The National Council for Interior Design Qualifications is the foremost authority of ID education and practice in North America. It is the institution which sets the standards for curriculum, determines the number of hours of required education and work experience for writing the professional exam, and administers the professional exam. Their definition of interior design as published on their website is as follows (http://www.ncidq.org/AboutUs/AboutInteriorDesign/DefinitionofInteriorDesign.aspx):

Interior design is a multi-faceted profession in which creative and technical solutions are applied within a structure to achieve a built interior environment. These solutions are functional, enhance the quality of life and culture of the occupants and are aesthetically attractive. Designs are created in response to and coordinated with the building shell and acknowledge the physical location and social context of the project. Designs must adhere to code and regulatory requirements, and encourage the principles of environmental sustainability. The interior design process follows a systematic and coordinated methodology, including research, analysis and integration of knowledge into the creative process, whereby the needs and resources of the client are satisfied to produce an interior space that fulfills the project goals. (NCIDQ 2010)
The NCIDQ’s explanation of an Interior Designer goes on to describe the scope of services offered by a professional practitioner. Guerin and Martin (Guerin and Martin 2004) cite several governing bodies’ definition of ID and scope of services including that of the National Design Alliance (NDA) in Canada, the NCIDQ, and the US Bureau of Labor Statistics each of which speak to the recognized professionalism of ID based on ideas of “specialized knowledge” of its practitioners. They argue that since these well-established and respected institutions accept an accurate definition of the profession, interior design is indeed a profession.

Building on the technical definition, Tiiu Poldma describes interior design as an occupation built on concepts of care and service (Poldma 2008). In this we see a suggestion that ID isn’t primarily about making a space beautiful or fashionable, as so often assumed. It is, instead, primarily about the interface between people and their environment. Guerin and Martin (2004:2) identified how designers apply this special knowledge to the benefit of the public in terms of “wellness, performance, and productivity” due to the growth of commercial properties requiring the attention of ID practitioners. This notion begins to identify a need for ID services from real estate, personal, and economic perspectives.

Most current descriptions of ‘profession’ include references to formal education and/or training, compensation for services, and self-regulation as a group. When Guerin and Martin examined the body of knowledge in the interior design profession, they identified seven categories and eighty-one knowledge areas based on the four stages of the ID career cycle. The stages referred to are: education, experience, examination, and legal regulation. This body of knowledge Guerin and Martin refer to is made up of the designer’s work, their ‘special’ knowledge and skills, and how they apply this expertise to the benefit of the public in terms of health, safety, and welfare (Guerin and Martin 2004).
In the context of this thesis, a professional Interior Design practitioner shall be identified as an individual who has met the requirements (or is pursuing the path) of education, experience, and examination leading to licensing and registration with the appropriate granting authority. The definitions published by the NCIDQ shall be followed and this thesis accepts that ID is a profession with a growing body of knowledge. Additional detailed information of ID education, professional examination, and registration may be found in Appendix A.

The range of technological and behavioral expertise involved is daunting and creates significant challenges for interior design education and practice. Continuing professional education in ID is one way of enabling practitioners to expand their range of expertise or keep current in their primary practice areas. “Continuing Professional Education is a major growth area in the education and training of adults,” says Columbia University professor Stephen Brookfield (1986:170). His analysis finds that a sub-culture of education within professions themselves is a growing field whereby practitioners find opportunities for additional training, develop ethical codes of practice, pursue legal reinforcement, and ultimately gain public acceptance and a stronger sense of collective professional identity (ibid). To date, ID professional continuing education is consistent with this description as product knowledge, changing building and construction technologies, and business related areas such as project management have been the focus for continuing professional education opportunities. However, the role of research and specifically social and behavioural research is currently not well understood and generally not the focus of professional continuing education courses. However, ID educational accreditation standards are increasingly rigorous and university degree programs in Interior Design now include four year bachelor degrees and graduate research degree programs with greater curricular emphasis on the use of theory and research to inform the design process.
A Role for Research in Interior Design Practice

Generally speaking, ID practitioners do not conduct research in the traditional academic sense. However, according to Donald Schöen (1983), design itself is a form of inquiry and a process for generating new knowledge. Most ID students become professional practitioners rather than research oriented academics who publish in peer-reviewed, academic journals. However, evidence-based design methods are research-based. Using this type of research approach in practice contributes to a culture of professional inquiry and increases a practitioner’s as well as the profession’s knowledge of interior human environments. A role for research in the form of evidence-based design in ID education and practice will enable discussion about priority research areas and methods related to design, and identification of best practices in evidence-based design. An increased understanding of evidence-based design concepts and practices can add value to the unique professional knowledge base used in ID professional practice. Increasing opportunities for research related to ID is important to furthering the body of knowledge used in practice and clarifying the contribution interior designers can make in creating built environments.

Designers develop a vast library of knowledge from their practical experience and according to Blackmer (2005), knowledge is the metric with which success and value is measured. Blackmer advocates knowledge contained in practice “must be shared to advance its credibility and the contribution to the full breadth of the design profession,” (ibid:x). If interior design professionals did move towards a research-based style of practice they would effectively be working towards advancing the profession as a whole. This is supported by Zborowsky’s (2009) statement: “practice-based researchers are in a unique position to advance our discipline…we have a unique ability to advance aspects of research and theory through the direct application of our findings.” (ibid:139).
Evidence-based design is not a new concept. It is rooted in healthcare design where “good” design is the result of systematic research which contributes to patient health and well-being (Martin and Guerin 2010). However, some designers have expressed fears about an evidence-based design approach which include a lack of creativity and innovation due to a more scientific methodology (Groat and Wang 2002). But Martin (2009:155) responds to such criticism by stating that the knowledge gained through evidence-based inquiry allows designers to move “beyond normative design” and instead promote originality through knowledge. Martin also addresses evidence-based design from the client’s point of view suggesting that many business professionals use evidence-based practices and are beginning to expect the same from the interior designers they engage so that they may provide stakeholders with convincing arguments for project, budget, and resource allocation approvals.

**Purpose and Objectives**

The purpose of this thesis is to explore the role of continuing professional education as a vehicle for linking research to professional practice. As illustrated in Figure 1-1 below, research has traditionally been restricted to ID education. However, continuing professional education offers a research link to practice.

![Figure 1-1: Linking Research to Practice](image)
There are other major topics that are closely related to the research study. Figure 1-2 illustrates the possible links between instructional design, continuing professional education, evidence-based design, and research within interior design practice.

The value of an evidence-based approach to ID lies in its emphasis on critical thinking and systematic inquiry in understanding user needs and behavior. This information can better inform the design process for dedicated or specialized types of interior environments. The challenge is how to expand the use of an evidence-based approach to a wider range of interior design practices. The objectives of this thesis are to:

- demonstrate a ‘prototype’ evidence based design continuing professional education for Interior Design practitioners.
- use an evidence-based design approach for both continuing education content as well as the framework for demonstration assessment.
Document Organization

The following Chapter presents a summary of the literature related to evidence-based design in Interior Design in a North American context and continuing education factors relevant to ID practitioners. Chapter Three describes the process of the prototype course development. Chapter four describes the prototype course demonstration process and resulting participant feedback. The overall success of the prototype demonstration is evaluated in Chapter Five. Finally, Chapter Six concludes with a discussion of next steps.
chapter 2

LITERATURE REVIEW

The term body of knowledge encapsulates a breadth and depth of information that interior designers learn, study, explore, research, apply, and communicate. Joy Dohr\(^2\) (2009:95)

The literature reviewed for the purposes of this thesis consisted mainly of books and journal articles. Books provided a vast amount of material on design thinking, design processes, research methods, and architectural design or focussed specifically on design inquiry and/or evidence-based design in both architectural and interior design contexts. Many include case studies to augment the explanations, while others were collections of essays ranging from practice regulation and sustainable design practices to undergraduate education and professional identity.

The journal articles were much more specific to ID; specifically The Journal of Interior Design published by IDEC, Design Issues, and the Health Environments Research & Design (HERD).

Articles in these peer-reviewed journals included research findings related to current areas of interest by the ID community. These areas included: healthcare design, sustainable design, and design education. Other articles expressed views on interior design education, professional qualifications, and licensure/registration, as well as design thinking, the value in design work, and the development of interior design knowledge through research in both education and practice. Most of the journals reviewed were published between 2000 and 2012 with a few dating back to the 1980’s and early 1990’s. In total, seventy-five books and over fifty journal articles were reviewed for this work.

The literature review began with a broad examination of design processes, including both a historical review and the creative process of designers as individuals. It then focussed on design processes specifically used in ID. Evidence-based design emerged as a key element in current ID discourse, with reference to general design thinking issues including concepts of reflective practice, knowledge acquisition and sharing, and the role of research in design. In turn, these topics were discussed in relation to post-secondary education, another important element in the discussion of the role of research in ID practice. To curb the many avenues and topic areas touched upon, the literature review was condensed to focus specifically on the concepts related to evidence-based design relevant to continuing professional education.

**Key Findings**

1. **Design Process**

Some believe that the design process works best when bound in a linear, systematic framework. John Chris Jones (Jones 1992) wrote one of the earliest texts on design methods and discusses the idea of design as learning, procedure, and method. His perspective favours the design-as-procedure approach, as does Alexander who places design value in physical order, organization,
form, and function when he says “every design problem begins with an effort to achieve fitness between two entities: the form in question and its context,” (Alexander 1964:15). To address the complexity of design problems, Alexander suggests breaking the problem into smaller, manageable pieces through a systematic, mathematical system then combining a set of sub-solutions into a whole; aiming for a gradual and cumulative evolution of design. Sometimes this approach works well but design does not always follow such a prescriptive format.

Historically, designers were crafters who constructed objects and learned from the masters of their trade. Then drawing designs before crafting took over as a means of quickly exploring and experimenting without having to build each object. Similarly, Perrone, Lima et al (2006) argue that sketches signify a systemic, incremental process and can provide many interpretations of the design problem and solution. They go on to propose that sketches take an analytical process and express design problems in abstract shapes, taking something complex and making it simple.

When discussing design processes, many refer chiefly to the creative process that goes on in the designer’s mind. Several authors and design researchers have examined how designers gather, contemplate, and process information. Some have referred to this journey as problem-solving (Aspelund 2006). Aspelund also relates this process to Maslow’s Hierarchy of Needs pyramid and proposes a similar distinction in design whereby functionality is considered a basic need while reliability, usability, and proficiency follow, and creativity sits at the top of the pyramid (Aspelund 2006). This idea begins to connect design work with the designer, and the resulting design with the users, which is very much what ID does.

From a different perspective, Poldma (2006) stresses that the design process can no longer be viewed as a linear step-by-step process and calls for ways of knowing that include both thinking and doing. “For interior designers, the combination of human experience situated within both
functional and aesthetic spatial situations is what guides an essentially flexible process that is
design in a more general sense,” (ibid, 2006:viii). She argues that this is driven by culture, policy,
and community as much as it is based on aesthetic and need. That is, the “process is naturally
iterative, creative, knowledge-based and driven by human nature” (ibid. 2006:viii). Her argument
responds to changes instigated by clients, site conditions, or unexpected circumstances, which
also require the designer to be flexible and adaptive. If designing is not as systematic and
prescribed after all, how does a designer capture ambiguous information or communicate that
information?

An explanation is provided by Franz who explains that what makes design a creative act is that
designers use techniques such as drawing on personal experiences, utilizing a variety of media,
and drawing on other visually-based images which are used to create data (Franz) 2005). This
concept of creating data comes into play as we explore ways of inserting research elements into
the design process. Designers are not researchers, yet they perform data-gathering tasks with
each project by the very means mentioned. Lawson also discusses the importance of drawings
and diagramming as communication, even as memory storage of ideas when there are so many
things to consider simultaneously (Lawson 2004). Design is complex and designers develop
unique ways of collecting, storing, organizing, and working with the mass of information required.
Schwarz discusses the concept of using writing and diagramming to learn, analyze, and
synthesize design ideas (Schwarz 1997). He argues that both writing and diagramming are
effective in building a theoretical foundation. Similarly, Wang argues that diagramming is a way of
bridging research nomenclature across disciplines and serves as an interdisciplinary way of
understanding the design process (Wang 2007). All this leads to the idea that a practical
application may be required for effective design learning. This proved to be a major factor in the
self-study aspect of the design of prototype course. Building on Schwarz’ and Wang’s ideas,
coupled with first-hand experience in traditional design learning environment, a studio
environment was selected as the learning environment and interactive, hands-on activities and exercises were a feature component of the course design.

There is no single design process that must be followed in all design situations. The most recognizable process to Interior Designers is described in the following phases: pre-design, schematic design, design development, contract documentation, bidding and negotiating, contract administration, and post-construction (Kilmer and Kilmer 1992). This is a linear strategy that helps to move a project from beginning to end but since design problems are dynamic and complex there is often need to circle back to aspects of previous phases to review particular details which affect the outcome. Heuberger and Special, however, describe the design process for interior design as: problem identification, idea generation, analysis, decision, implementation and evaluation (Heuberger and Special 1997). This is similar to a critical thinking process which can be used for any kind of problem-solving situation and would be very helpful in a research-based design approach such as evidence-based design. Both descriptions of the design process are valid and share some similarities. Both generic descriptions of the design process hold an opportunity to insert researching skills and evidence-gathering.

In Evidence-Based Design for Interior Designers (Nussbaumer 2009) the design process follows the Kilmer and Kilmer phases and identifies the various tasks which fall under each phase. This version of the explanation of evidence-based design includes a large section on programming, information gathering, fact-finding, and new discovery. Problem-seeing, measurable goals, and generalizable results are key to this part of the process relying heavily on forms, charts, and spreadsheets to collect and organize data. Nussbaumer heavily uses research terminology as though it is already in the mainstream which can be either off-putting to those uncomfortable with an academic tone or draw the attention of designers eager for a more focused effort in the programming of their projects.
With a variety of opinions about the design process the question remains, is design a linear, straight-forward process or a flexible and adaptive one? The answer is likely both. A common and familiar method for orchestrating a project from inception to completion requires advancing from one step or phase to the next, but changes instigated by clients, site conditions, or unexpected circumstances require the designer to be flexible and adaptive.

2. Reflective Practice

Donald Schön (Schön 1983) addresses “The Crisis of Confidence in Professional Knowledge” (ibid:3). He applies his ideas to several professions including those of medicine, design, and psychology. He asks “...in what sense, if any, is there intellectual rigor in professional practice?” (ibid:3). This question sparked the premise of this research inquiry in that design practitioners often express interest in understanding new and important practices that will increase knowledge, result in better design solutions, and contribute to the profession as a whole. Since public perception of the ID profession is often misunderstood, could adding a level of rigor to design work help bring understanding of and respect for interior design as a profession? To Schön, reflective practitioners differ from experts in that they have the ability to learn from uncertainty. No ID practitioner would suggest absolute certainty for any design project and yet, they can competently complete building projects with some level of foresight. This supports the need for increased emphasis on knowledge in design. This knowledge should not only come from technical know-how, but that those methods for learning such as experience, wisdom, and intuition in decision-making as well. How, then, does a systematic approach to design such as evidence-based design fit in with using knowledge from experience and doing?

Schön has inspired and influenced other writers of design theory including Jill Franz who goes into some detail about analyzing images as data and discusses the importance of the act of
creating the image referring to Donald Schön’s reflection-in-action-on-action theory (Franz 2005). These techniques are identified as actions designers take when interpreting and synthesizing data into a design solution. Franz, Wang, Schwarz, Lawson, and others have all provided reasoning that drawing, sketching, and modelling are not merely creative activities, but true methods for creating and analyzing data through reflection. These may not be common research methods such as taking measurements or recording verbal or written responses from a sample group, but it is a critical method for all designers.

Dorst goes so far as to indicate that rational problem-solving and reflective practices are the two main ways of researching design process (Dorst 2008). Here, research is applied to the study of design processes as opposed to utilizing research as a tool within the design process. Dorst identifies that in design, research by observation is done without any sort of framework in place. Without a framework to guide the data-gathering process there is no way to test the theory or hypothesis that was made at the start of the project. Once the issues are identified, Dorst refers to Hubert Dreyfus’s six ways of problems solving: naive, novice, advanced beginner, competent, expert, master, and visionary which provides a structure for various levels of problem-solving knowledge. Dorst’s ideas inform this research by discussing the importance of a balanced framework for problem-solving and reflective practice (Dorst 2008).

Reflective practice can take many forms. Utilizing hand-on methods such as sketching, drawing, and writing are helpful ways in visually organizing and communicating ideas. It is done individually and collectively. Designers can take the time to reflect on their own creative processes, design decisions, and how they use and share their knowledge. As a group, design teams can review documents, conduct post-occupancy evaluations, and create and make publications available to other design professionals. Reflective practice is good exercise for all ID practitioners as they build and grow the profession. Reflection and critical thinking of one’s own
work allows one to identify what worked well, and what needs improvement. Without the courage to admit failures and without the foresight to repeat superior outcomes, design cannot excel.

3. Knowledge

Designers use problem-solving skills to change "existing situations into preferred ones" (Simon:111). It is their collective knowledge as professionals that allows them to arrive at appropriate solutions. Designing around a central conceptual idea or theme often helps to focus the project at hand while understanding of established and emerging theories can enhance this focus. The skills required in researching and critical thinking can be applied to design work.

Defining what knowledge is, how it is created, who has knowledge, and how it is shared with others are important issues to examine when considering design theory and practice. Design practice is one element of knowledge in design and “...all practice relies on a rich cycle of knowledge management that moves from tacit to explicit and back again” (Friedman 2003:520). Based on this idea, we can see a link between theory and practice where explicit knowledge learned from books and classes defines the undergraduate design studies and tacit knowledge is usually gained through experience and application. It indicates that designers draw from both an inductive and deductive process, from a scientific and an artistic domain to make design decisions. This research into evidence-based design and the understanding of learning by designers recognizes that both ends of the spectrum are important. In other words, drawing from experience, intuition, and perception is a critical aspect of determining design solutions, but it is also essential to engage in structured and defendable processes to complete an informed decision-making process.

Friedman also states that design teams contain a stock of knowledge that no one person could possess (Friedman 2003). Knowledge distribution or sharing knowledge with other designers is
important to “advance its credibility and the contribution to the full breadth of the design profession,” (Hasel and Scott 1996; Heuberger and Special 1997; Blackmer 2005; Marshall-Baker 2005). Clearly, several writers agree that the communication and sharing of information is crucial in interior design. Recognizing that the profession is still in the early stages of establishing a comprehensive body of knowledge it is reasonable to ascertain that any contribution in the form of designed and constructed spaces is capable of adding a piece to the whole. It can be argued, therefore, that encouraging all interior designers to publish their work, and submit their designs for peer-review would benefit all. Tiu Poldma argues that academic research gathered and presented will advance the profession as a recognized and respected discipline (Poldma 2006). She quotes Margolin and Buchanan: “knowledge is useless unless it is transformed in the designer’s imagination into ideas and images, visions of the world that may be effectively communicated to others,” (ibid.:viii).

Alluding to Nigel Cross’s theory of a “Designerly Ways of Knowing”, Lawson describes a scenario in which early groups of people didn’t need architects or engineers to build their structures, they simply “knew” what to do and became good at doing it (Lawson 2006). Yet there must have been some exchange of knowledge in order to achieve this. Knowledge gained through visual observation, memory, and necessity may be some of the explanation for general understandings that are not otherwise recorded or formalized teachings. Poldma discusses knowledge based on what we learn from training and knowledge acquired through experience as priori and posteriori knowledge, respectively (Poldma 2008). This is part of the terminology needed to understand research concepts and how knowledge is gathered, interpreted, and shared and it helps to describe how many kinds of knowledge are important to design work. Blackmer proposes that knowledge grows throughout one’s career, especially in terms of professionalism versus individual know-how (Blamer 2005). This opinion is echoed by Marshall-Baker in the statement “Knowledge expands and evolves over time, has many contributors and is emergent,” (Marshall-
Baker 2005:xiv). She identifies different kinds of knowledge including local, universal, practical, and cognitive. While there is still some element of understanding gleaned from these difficult-to-explain sources, we can do better by recording this growth of knowledge through reflective practice.

Schön (1983) conducts an important inquiry into the knowledge difference between education and practice. “How is professional knowing like and unlike the kinds of knowledge presented in academic textbooks [...] and in what sense, if any, is there intellectual rigor in professional practice?” (ibid:viii). He defines tacit knowledge as learning by doing or, having a ‘feel’ for it, and building up a repertoire of experiences. This idea is exemplified by Lawson who suggests that designers have a 'special' kind of knowledge. Despite all attempts to categorize the design process into a systematic, logical, progression there will always be an element of personal wisdom and accumulated experiential knowledge that must have a place in design processes and the body of knowledge in interior design.

4. Theory

Friedman suggests that theory allows us to frame and organize our observations (Friedman 2003). When he states that design theory is not the same as design practice, he means that theory is a tool that allows us to conceptualize and realize design while research is the collection of methods that enable us to use the tool. What are the theories that are appropriate to interior design? Nussbaumer describes several theories which interior designers are likely to use in their research efforts to inform decision-making. These may include Gestalt Theory, Functionalism, Interior Ecosystem Model, Person-Environment Theory, Symbolic Interactionism, and Change Theory as well as those related to Meaning of Place (Nussbaumer 2009). Caren Martin identifies the importance for interior design students to understand those theories which speak to the human interaction with their environment and cites the Human Ecosystem Theory, Environmental
Preference Theory and the Space Syntax Theory as examples (Martin and Guerin 2010). Schwarz examines theories for ordering space because “the use of theory helps designers plan, predict, and create from a knowledge base,” and to “use informed, critical thinking to evaluate and select” from design ideas, (Schwarz:42). However, it is unlikely that many interior design practitioners are familiar with these theories based on their undergraduate education and the fact that they are not widely referred to in practice.

Practitioners are not theorists and do not often spend time pontificating these theories of design. Yet, if there were a stronger connection to design theories in practice, it would only enhance knowledge in the field. It is possible that the design solutions created would extend past the client’s basic needs and wants and become outstanding. If all designed spaces were of this calibre, we could surpass the trendy, the show-pieces, and the signatures, of once-in-a-while great projects and extend “great design” to all works.

5. Research

“Research is one of the main components in distinguishing a profession [...] from a trade school vocation,” (Dickinson, Marsden et al. 2007:2). This is why learning research techniques and how to use research by others is so important for interior design. The difference between research and programming is defined in Faculty Perceptions Regarding Research: Are We on the Right Track? by Dickinson, Anthony et all, (2009). While programming is more like knowledge gathering, research is concerned with creating new knowledge. The authors discovered that interior designers usually perform informal information gathering while very few, mainly academic instructors, conduct actual research in pursuit of new knowledge. This is echoed by Dickinson and Marsden (ibid. 2007) who discovered that interior design students are unaware of what research is or how to conduct it in their design work. This is troublesome and speaks to the educational standards for success in the ID profession. Graduates have been entering the world
of design practice without an understanding of how research skills can play a role in practice, how to conduct research such as analysis of information or interviewing skills of clients and user groups. Then, with the changing standards in design education beginning to emerge, young graduates will enter the workforce with skills their superiors have not practiced and cannot mentor. In response, Weigand and Harwood “promote the integration of research in the design process […] by allowing student-directed research to inform the design process taught in curriculum,” (Weigand and Harwood 2007:3). So if we are beginning to see change in undergraduate education, how will established practitioners – leaders in the design firms - respond?

Friedman 2003) defines research as the methodical search for knowledge while Lawson (2004) argues that design is a form of research and like research, design aims to add something new. Schön (1983), on the other hand, argues that practice is a form of research and that reflective practitioners can begin to analyze what they did through their design actions when they take the time to reflect on their process. Each of these critiques are valid statements as the ideas of research, theory, practice, and education are deeply interwoven. This idea has been used in the development of this research in an attempt to strengthen the link between the activities traditionally reserved for academia and those usually found only in practice.

6. Research in Education

Dickinson, Marsden, et al. addressed the perceived lack of research education in undergraduate ID programs (Dickson, Marsden et al. 2007). Their study indicates that students are unaware of what research is or how to conduct or apply it in their design work. They found that undergraduate design students believe that research is equivalent to information gathering, especially from "soft sources" such as internet searches. They also found that interior designers tend to think that graduate level education is not required for practice (Martin and Guerin 2010).
This perspective is particularly concerning in the context of this thesis because it is usually at the graduate level of education in which research skills are developed. If practitioners do not see the value in graduate level education, they also likely do not see the value of research in design work. In fact, this notion is later verified by Dickinson and Anthony in their work, *A Survey on Practitioner Attitudes Toward Research in Interior Design Education* which surveyed practitioners in a 2012 study (Dickinson, Anthony et al. 2012).

"If we want students to develop solutions that are imaginative, they need to understand interior design precedent, and they have to be critical of that precedent in order to move the field forward." (Dickinson, Marsden et al. 2007:11). These findings prompted Dickinson to conduct further research the results of which were described in *Faculty Perceptions Regarding Research: Are We on the Right Track* (Dickinson, Anthony, et al. 2009) Dickinson discovered that most designers perform informal information gathering while very few, and mainly academic instructors, conduct actual research in pursuit of new knowledge. While both students and professionals agreed that research was important to the field of interior design, not very many seemed interested in conducting research as part of their careers or enhance curriculums to include more rigorous researching (Dickinson, Anthony et al. 2009). This is where attitude and outlook needs to change. Practitioners should not only participate in adding to the ID body of knowledge but also view researching as part of their design processes, client communication, and continuous professional learning. The researchers believe that it is in the education of design students that future designers will gain a better understanding of what researching is and this will in turn encourage researching in professional practice.

Guerin and Asher-Thompson (2004) propose a Master’s of Interior Design (MID) as the first professional degree, further enhancing the level of professionalism for interior designers. They believe the requirements of this degree process would ensure basic skills, professional practice,
and research are all combined in the minds of interior design practitioners and also encourage teaching opportunities later in their careers. This idea indicates that new graduates who become junior designers will enter the industry with knowledge and skill-sets that may even exceed that of their superiors. How can seasoned designers with a bank of practical experience “catch-up” to these new graduates? The answer could lie in continuing education such as the type demonstrated in this thesis. It is also important to note that the education of seasoned practitioners is not de-valued or substandard, only that recognizing the changing landscape of undergraduate and graduate education in the field is critical, and flexibility and adaptation are required by all design practitioners. Furthermore, the educational experience gained at the master’s level provides opportunity to develop the necessary research skills such as those used in evidence-based design (Martin and Guerin 2010).

7. Research in ID Practice

Interior designers are not trained to be researchers, but having said that, designers will require learning and refining some skills directly related to interpreting data. Research skills include the ability to review and interpret the data collected for validity, accuracy, and reliability. The research practiced in academia will always be different than any research methods practiced in the design industry because the needs and goals of the research are different. Design firms exist to produce a physical space for a client while academic research focuses on knowledge as the end result. Terri Zborowsky suggests that a paradigm shift is required to integrate research into practice (Martin and Guerin 2010). A researched-based design practice will focus on gathering and analyzing information so that a design solution may be synthesized and communicated to the client. As such, the term “research” may not be the most suitable term to use in design practice because it does not suggest a clear outcome. Practitioners must provide their clients with a satisfactory outcome (a designed space as solution to a current design problem). Understanding
research as "inquiry" makes the word "research" less off-putting and instead designers can think of research as an "action plan" for getting design work done (Groat and Wang 2002).

Many people do not have a full understanding of what research is. In school, children are taught to think of research as finding and reading information from books, electronic material, and other publications, then writing about their own interpretations on the subject. It usually is not until the graduate level in education where students are taught that research is more than gathering information discovered by others as it is also about adding to the greater body of knowledge through a contribution of original material. As such, many ID practitioners would agree that most of their "research occurs during dialogue with their clients in the programming phase," and that this is done on a "project-to-project basis," (Martin and Guerin 2010:137). Many design practitioners would also agree that the majority of research in a formalized manner is done primarily by professors. Ernest Rhoads agrees that explicit knowledge which can be taught and learned in academia is different than the tacit knowledge gained through personal experience (Martin and Guerin 2010). Terri Zborowsky proposes that "to build our knowledge collectively, as a discipline, we need to formalize our approach to research by conducting systematic research," (Zborowsky 2009:137). Similarly, Brandt and Chong discuss the value that is gained when designers go beyond relying on personal experiences and intuition toward a process that provides clients with tangible, rational evidence (Brandt, Chong et al. 2010).

It is with this difference in mind that we need to understand the different types of research and various methods used in practice. To begin, designers need to better understand the most suitable research methods available for a design practice as opposed to those methods that would more likely be used in the sciences or the arts. Groat and Wang identify the most suitable methods for gathering data as experimental, modelling/simulation, and case studies (Groat and Wang 2002). In the book Informing Design, Dickinson describe the role of research, information
gathering, and programming in the evidence-based design process (Dickinson and Marsden
2009). These authors emphasise a definition of research that goes beyond information gathering,
and instead includes careful review of academic literature coupled with other means of gathering
data, all in an attempt to add to the knowledge base of the larger community. Furthermore, they
state that ID practitioners could use this process to make design decisions, not based on the
personal preferences of the designer or design team members. The authors also refer to the
utilization of peer-reviewed publications to help justify decision-making to educated clients, as
well as conducting internal information gathering processes such as post-occupancy evaluations.

Post occupancy evaluations are identified as a critical method for gathering vital feedback for a
reflective practitioner (Brandt, Chong et al. 2010). It is an assumption in this thesis that post-
occupancy evaluations are often skipped and not included in initial proposals to clients. This may
be due to the desire to keep professional fees relatively low in order to remain competitive in the
market. Caren Martin acknowledges that not all designers or design firms have the resources or
culture to support an evidence-based design approach but strongly encourages this paradigm
shift for the successful future of the design professions (Martin 2009). Like Hamilton and Watkins,
Martin proposes, from practice experience, that clients are ever-more demanding of a rationale of
proposed design in order to make informed decisions, or to present to their stake-holders during
budgetary decision-making. Martin cautions against using evidence-based design terminology as
a marketing tool without knowledge or skill of the practice. Evidence-based design provides the
means to predict outcomes, share information of best practices, and increase quality
(Martin 2009).

Brandt, Chong et al. (ibid) discuss the myths and assumptions that many designers have or may
have about an evidence-based design approach because they may see it as too scientific,
prescriptive, anti-creative, too expensive, time-consuming, loss of proprietary knowledge, and
liability issues. They then respond to these “barriers” with the proposal that there is a design process for the gathering, analysing, and synthesizing data which requires creativity and innovation: evidence-based design (Brandt, Chong et al. 2010). Martin also discusses the possible negative aspects of research in practice, mainly increased costs to the firm, and perceived loss of creativity (Martin and Guerin 2010). She indicates that “bringing this knowledge into the firm enables practitioners to move beyond normative design in creation of design solutions for savvy, sophisticated clients who demand positive improvements to their ‘bottom line.’ And, it must be noted, these clients are often business professionals who are accustomed to having evidence guide their business decisions. They ask no less of interior designers,” (Martin and Guerin 2010:155). Allan Guinan goes on to suggest that designers can use research to support their creative decisions (ibid 2010). On the potential loss of intellectual property from the dissemination of research findings Guinan ties in the financial aspects of the design service industry as contributing factors on the less than valued service interior designers provide (Martin and Guerin 2010). Clearly, there are issues that practitioners must address as they introduce research into regular practice but this is true for a growing profession regardless of the topic at hand, be it education, licensing, or research in practice.

Among the potential “fears” or hesitations practitioners may have about a research-based design approach, we must recognize that designers are not trained researchers. Where does this leave evidence-based design, an approach based on the fundamentals of researching skills? Stichler (2010) proposes a difference between research and evidence-based design based on the way they are used as tools to reach the goal. She argues that research questions are based on a hypothesis that is tested or explored and has limits to the outcome from following a formal, logical structure. However, depending on the disciplinary context research does not always involve a hypothesis being tested. Evidence-based design, for example, is meant to be used to effect change suggesting a more fluid and flexible structure. Caren Martin makes another connection
between research and practice through the use of evidence-based design in that she argues that it is new graduates who have researching skills who will bring these concepts to the design firm (Martin and Guerin 2010). Perhaps it is time that will determine the most appropriate use of research in interior design practice. This, of course, cannot happen until research-based design is infused into mainstream practice.

8. Evidence-Based Design

The generally accepted definition of evidence-based design is as follows:

Evidence-based design is a process for the conscientious, explicit and judicious use of current best evidence from research and practice in making critical decisions, together with an informed client, about the design of each individual and unique project. (Hamilton and Watkins 2009:vii)

Hamilton goes on to describe an evidence-based design definition to include a distinction between evidence from science and influences from judgment gained through practice (Martin and Guerin 2010). This definition includes all elements described in the previous sub-sections: design processes, research skills, and elements of creativity and experience on the part of the designer. Evidence-based design combines the most important and influential current issues in the ID profession. Dialogue on evidence-based design promotes dialogue in these other topic areas as well.

Hamilton (2009) is one of the foremost writers on evidence based design especially in the context of healthcare design in which evidence-based design is rooted. He explains the development of the concept through the use of data in the medical field, then how healthcare design looked to data to help identify problems and define solutions that will assure positive effects. Nussbaumer (2009) also explains evidence-based design as a concept derived from healthcare design in which it is very important to accommodate the health and well-being of patients. This concept
Chapter 2: Literature Review

focuses heavily on systematic research done in order to gain knowledge which influence design decisions and is supported by positive outcomes.

The literature identifies the general history and development of the concept by describing its roots in evidence-based medicine. This has lead to evidence-based design being applied widely in the specialty of healthcare design where the goals of patient care and well-being are primary, and highly valued. Hospitals, clinics, senior care centres, and other health and well-being places have shown success by smartly relying on research-based design decisions and indeed this is where we see much of the current research. Some examples include the appropriate selection of flooring materials based on the tripping hazards measured in various studies of seniors with walkers and wheelchairs, way-finding strategies using variations of colour, lighting, and texture in the materials of places housing residents suffering from dementia, and access to natural sunlight and views of nature to aid in the speedier recovery of surgical patients as compared to those without such benefits.

Research findings that indicate a reduction of patient stress as a result of nature-based artwork could influence design decisions in patient care rooms.

Figure 2-1: Example of healthcare design. Patient room at Community Hospital of the Monterey Peninsula. Design by HOK. Retrieved December 28, 2013 from http://www.hok.com/design/type/healthcare/community-hospital-of-the-monterey-peninsula-pavilion-expansion/.
The Pebble Project encourages more research in the design of healthcare facilities and to disseminate the results as widely as possible (Hamilton and Watkins 2009). But evidence-based design is not limited to the design of healthcare spaces.

Since evidence-based design is an accepted form of strategy in the design of healthcare spaces, so too have the principles of this type of design been applied in educational institutions, corporate office environments, and retail spaces. For many years the design of schools has been practiced with effective ways of learning by children and students in mind. These design strategies often follow the guidelines prescribed in the teaching methods themselves, (the design of the learning environments in Maria Montessori schools, for example) (Hamilton and Watkins 2009; Lippman 2010). Corporate office design has also changed tremendously over the years as companies such as Knoll, Steelcase, and Herman Miller utilize findings in research of ergonomics and human behaviour to persuade designers to use their products in the design of corporate offices. They publish white papers on their web sites that have stirred debates and influenced trends. Research in this area is often based on ergonomics and human factors, user health and well-being, and human behaviour including generational differences and core corporate values. An example of this includes the use of open- vs. private-office layouts which contribute to noise transfer/attenuation, privacy, and communication effectiveness. Another example involves measures of productivity based on physical comfort and ability to adjust personal workspace from seating to storage items. Marketing strategies have long since influenced the design of retail spaces including the layout of grocery stores, product placement strategies, and advertising tactics; from shopping malls to department stores (Hamilton and Watkins 2009).
Research findings may inform the designer and client of the benefits of exposure to natural light as it aids learning in schools.

Research in ergonomics may inform the designer and client of the appropriate characteristics for selecting office furniture.


Designers may find research to support their decisions to provide rest areas throughout a shopping centre.

In their book *Evidence-Based Design for Multiple Building Types*, Hamilton and Watkins (2009) emphasize design as a knowledge-based practice. This is a fresh perspective on a field (architecture and design) more often described as a service-based industry. The idea suggests that client's expectations are changing from seeking a service from a professional, to seeking value from a knowledgeable professional. They seek out professionals with a strong track record. This builds trust in the design professional hired. In turn, an exceptional level of knowledge raises a sense of professionalism, responsibility, and commitment to the designer's work. Hamilton and Watkins suggest that designers have always used evidence from their own field such as data gathered from drawings, modelling, and experience, which indicates that designers may be open to learning about and implementing a formalized research-based approach. This supports the notion that evidence-based design is not a new concept; it does not require designers to reverse their training or ways of working. It does ask designers to strive for a higher level of performance (Hamilton and Watkins 2009).
Dickinson, Marsden et al. (2007) identified the importance of research skills as an imminent movement in the industry, especially as part of the ability required to successfully implement evidence-based design strategies. Evidence-based design builds on what designers do best: design and innovate (Brandt, Chong et al 2010). As this research-focused aspect of the design process gains momentum in the industry it is important to learn and utilize the appropriate skills and refrain from allowing evidence-based design to become a fashionable, trendy, or misused term.

Evidence-based Design is not merely a fleeting trend. Its roots have been clearly identified and the premise clearly and consistently defined. An evidence-based design approach is built on a foundation of strong research skills. The findings of this review indicate that the pursuit of an educational program designed to meet the needs of interior design practitioners on the subject of evidence-based design is appropriate.

9. Continuing Education (Adult Learning)

The literature which was reviewed provided insights on several aspects of teaching including course design, instructional methods, and understanding learners’ styles and preferences. Firstly, the concept of teaching adults focuses on facilitating, rather than lecturing, as a distinction (Brookfield 1986). Adults as learners are not blank slates or empty vessels waiting to be filled with information. Rather, they come to the class or course with a wealth of knowledge and experience and are more likely to want to build on what they already know.

A class is made up of individuals who form a group and as such, individual learners and group learners have varying dynamics. As individuals, they take responsibility for their own learning, reflection, and finding relevance in the material. When adults find their experiences echoed by others their level of engagement is likely to increase as they build upon their knowledge, share
information, and find support among peers. The facilitator, then, allows learners control of their own learning. He or she is to provide learners with alternative viewpoints to promote reflection and discussion (Brookfield 1986). These ideas were used in the development of the course by alternating times of lecture (information delivery) and activity (discussions and individual work).

Unlike younger or less experienced students, adult learners tend to be more motivated and to treat the instructor more as a peer. This is likely to occur in the continuing education course among a group of design professionals. According to Gross-Davis (2009) adult learners value choice of assignment and the ability to choose to work autonomously or with groups or pairs. Brookfield (1986) states that it is also important to challenge adult learners, by questioning their expectations, attitudes, and beliefs. This questioning of practice is achieved through reflection. Here, again, we see reference to Schön’s reflection-in-action concept to resolve the crisis of confidence in the professions. If practitioner’s take time to reflect on their practice, through a continuing education environment for example, they can effectively advance their practice.

In terms of evaluation, adults will likely find particular importance in understanding the end result of the learning. Despite intrinsic desires to expand knowledge or reflect on practice in order to see advancement, individuals often seek practical and tangible take-away’s to make learning seem worth-while. This is expected from traditional learning experiences required for mandatory continuing education and adds value to the effort of participation and understanding. Evaluations refer to the learning objectives of the course which are used as the criteria for revisions. Even ongoing learning requires some interval of evaluation to measure advancement in relation to past experiences and informal learning benefits from evaluation whereby it can identify which concepts are most valued by learners and therefore most important for evaluation development.
The literature stresses the importance of developing solid learning objectives and communicating these to the learners at the beginning of the course, then reflecting on these points again at the end of the class. Determining the goals of the course and understanding what the students should be taking away after their course experience will help to guide the design and development of course content and delivery (Gross Davis 2009). Within the content, adult learners respond well to examples which are realistic, topics which are relevant, and engagement on a personal even informal level. These ideas suggest group discussion will be an appropriate teaching and learning technique along a backbone that keeps topics on track and aligned with overall course goals and objectives.

**Application of Key Findings**

The key findings from the literature review contribute significantly to the development of the prototype course. Elements of each section are outlined in the following chapter, and then other data-gathering methods are described.
chapter 3

PROTOTYPE DESIGN

Fast knowledge is focussed on solving problems, usually by one technological fix or another; slow knowledge has to do with avoiding problems in the first place. David W. Orr\(^2\) (2002:40)

Approach

Methods

Multiple methods were used to gather information for this research. First, a thorough review of the available literature on evidence-based design contributed significantly to the overall understanding of the subject. Second, a practical exercise was devised to further this understanding. Ade-construction and re-construction process was applied to a selection of real-life projects familiar to the researcher to understand a more practical application of the concepts. Thirdly, a better understanding of educating adults and continuing professional education was achieved through participation in teaching and learning workshops and online courses. This

resulted in the creation of a continuing education course Version 1.0. Education specialists were interviewed to provide expert feedback on both the course design and the content, then the course was revised accordingly.

**Limitations and Bias**

There are limitations to the study. The researcher’s understanding of evidence-based design is limited to academic readings and a hypothetical exercise. The researcher’s personal experience from practice serves as an advantage in bringing a thorough understanding of the local interior design community and practices to the study, while personal assumptions developed from practical experience are addressed throughout the exploration process. The course was designed specifically for interior design practitioners, not to other design disciplines such as architects, industrial designers, graphic designers, or others. This limits the pool of course participants and the feedback which provides data is from a very specific group of professionals. While this study is designed to address the specific needs within the interior design profession, it may be expanded in the future to include other design professionals.

**Conceptual Framework**

Achieving the objectives of this research required exploring the necessary adult and professional education learning objectives applicable to interior design practitioners including the practical application of newly learned concepts and related advantages or benefits. Version 1.0 of the prototype development process will be the result of information from literature as well as a practical exercise. Feedback from selected consultants will facilitate revisions to the preliminary course resulting in version 2.0 which will then be demonstrated with a group of ID practitioners in a continuing professional education context. Participant feedback along with reflection of the prototype process will provide the results of this thesis as the first iteration of a potential future ID
professional education course. Figure 3-1 illustrates this framework with an “X” symbolizing the expected continuation of the explorative process.

![Conceptual Framework for Demonstration Prototype](image)

**Figure 3-1: Conceptual Framework for Demonstration Prototype**

The process described in Figure 3-1 is a qualitative research approach which includes narrative, participatory, and interpretive practices which explores the perceptions and attitudes of ID professionals toward research in design, specifically evidence-based design methods. Analysis of literature, a practical exercise, and open-ended questions to specialists will formulate and guide the prototype design. Analysis of participant feedback during the demonstration as well as written feedback through open-ended questions will provide information that will respond to the research inquiry.

**Information Gathered From Other Sources**

The development of the prototype course consisted of four steps. First, an understanding the topic of evidence-based design was achieved by analyzing the content of existing literature sources including books, existing evidence-based design courses, and completion of a reflective
exercise. Second, the design of the prototype course (v1.0) with the most appropriate and effective methods for delivering that content was created by attributing teaching and learning skills developed through hands-on instructional workshops, and review of short courses which were available through the Interior Design Continuing Educator’s Council (IDCEC) on adult learning specifics. Third, with this preliminary prototype concept in hand, education specialists were engaged to provide expert feedback on both the course design and the content. Fourth, the course was then revised accordingly (v2.0) in preparation for the demonstration with ID practitioners.

**Step One: Literature-Based Course Design Criteria:**

**The Design Process**

Evidence-based design relies on an understanding of the design process. There are many discussions on various design processes such as linear processes supported by Jones, Alexander, and Kilmer and Kilmer, and the more human experience and functional and aesthetic needs through a flexible process identified by Poldma. Since Nussbaumer builds on Kilmer and Kilmer’s outline of the phases of the design process (pre-design, schematic design, design development, contract documentation, bidding and negotiating, contract administration, and post-construction) by locating key tasks of evidence-based design in the pre-design phase, a generic Design Process for ID was identified and defined early in the prototype concept to ensure all participants are learning within the same framework. Figure 3-2 illustrates this generic process.

**Figure 3-2: A generic ID design process for prototype development.**
The ideas of drawing, diagramming, and writing (Schwarz, Franz, Lawson, Perrone, Lima et. al, and Wang) influenced the incorporation of a studio exercise in course design. Their discussions on physical communication are supported Schön’s “talk-back” theory from the design actions designers undergo in their work. This supports the notion that many designers “learn by doing” and therefore a hands-on activity, complete with feedback, was chosen to help reinforce newly learned concepts.

**Identity and Professionalism**

One of the overarching goals of offering instruction about evidence-based design to ID practitioners was to encourage knowledge-seeking and knowledge-sharing within the industry to advance the professional body of knowledge in ID. The concept of research in ID practice can be embraced if practitioners agree with Poldma’s view of interior design as a knowledge-based industry, not merely a service-based industry. All practitioners can take a vested interest in staying abreast of current issues in their field to support the advancement of ID as an informed, valued, and respected profession.

Consistent with Dorst and Schön the concept of reflective practice the prototype course will encourage practitioners to think about how and why they are completing design-oriented tasks not from a technical, know-how perspective, but as a community of professionals. What message are we sending our clients through our professional actions? Will they be content with their final product or will they view us as valued experts? Through group discussion, this would be good introductory material for the prototype course to set the stage of why we should study evidence-based design in ID practice.
**Knowledge**

It is important to acquire and share knowledge. Again, thinking of designers as part of a larger community, knowledge sharing is critical for advancing the profession as a community of practice. Individuals and design firms gain a vast amount of knowledge through their project experiences but sharing of this knowledge is limited to mentorship and peer-discussion and actually becomes of the network of personal wisdom rather than collective body of knowledge. When research is viewed as something done only in academia, as is the case in ID, no attempt is made, nor avenue offered, for knowledge sharing by practitioners through publication. By identifying this as a problem to the class, the stage can be set for discussing the relevance of research in practice because sharing of knowledge is an important aspect of research. Again, the ultimate goal is to arm practitioners with tools that will enhance not only their individual practice, but advance the ID profession as a whole.

**Theory**

The research theories related to interior design can play an important role in a research-based design approach, but it is likely that practitioners who are in the prototype course may find these topics too cerebral. As such, there will not be sufficient time to both introduce the topic and delve into the depth of various theories. It is also unlikely that the practitioners will find information of this nature practical. However, the inclusion of design theories could be incorporated in a later session of a multi-part course, or as reference material in a practical take-home assignment.

**Research**

Most people who have not received formal education and training in research and research methods do not have a clear understanding of the term. One of the foremost lessons that will be included in the prototype course will be to provide a clear explanation of research, specifically, the importance of adding to the general body of knowledge, not simply gathering information or
collecting personal wisdom. As part of this discussion, the duality between academia and practice will be used in an attempt to show that research could indeed have a place in practice when used by practitioners, not just by design students and instructors in educational institutions. This may also prove to be an opportunity to bring to light the connection, or potential connection, between practice and post-secondary education. Most commonly, individuals attend the required schooling to learn the fundamentals of the industry, then spend the rest of their career gaining experience and expertise in that industry with few remaining involved with the education of new graduates. For example, some may have complaints about what students are or are not learning in undergraduate design education but these practitioners have not been involved with the organisations or universities that provide the education. Understanding that undergraduate students are now learning about researching skills is a critical factor that will become more and more evident in practice as these graduates enter the workforce.

The prototype will identify and discuss specific methods and opportunities for gathering data that will be relevant to an upcoming or new design project and will discuss post-occupancy evaluation. The difference between using research and conducting programming tasks will be a part of the course, either through discussion, demonstration, or possibly a group activity. Also, a discussion of any design practice issue will bring up practicalities most designers must also consider that could hinder an evidence-based approach, such as concerns that creativity may be replaced with calculated, prescriptive design methods. In addition, the client’s need for privacy may come into question, or the designer’s desire to maintain intellectual property rights may be seen as a barrier that would inhibit knowledge-sharing. The prototype will identify both positive and negative perspectives and include opportunity for further discussion on this matter.
Evidence-Based Design

Hamilton and Watkins (2009) ease designers into thinking about research by identifying some of the ways designers already conduct research methods to a certain point. This concept will be translated into the prototype by acknowledging the knowledge practitioners already have, assuring them that evidence-based design is not about forcing new measures into a system that already works well. Both Hamilton (2009) and Nussbaumer (2009) heavily reference the roots of evidence-based design in healthcare design. This helps to place it in context for designers who look for a reference that they can relate to. Including a brief discussion on the origins of evidence-based design will be a logical start to the lecture in the prototype course. Then, other building types will be used in examples of evidence-based design opportunities.

As a result of the literature review a number of evidence-based design components were identified:

- History in Healthcare Design
- Terms & Definitions
- The Design Process
- Post Occupancy Evaluation
- Critical Thinking
- Data Collection
- Research Methods
- Literature Review
- Brainstorming
- Interviews
- Modelling
- Data Analysis
- Presentation
- Publish & Communicate

These topic areas were used as a preliminary list of subjects to be covered in the prototype course design. As the prototype concept evolved, it became clear that all of these possible topic areas cannot be covered in a single class or workshop. Therefore, combinations of topics or other means of topic selection were explored and examples of existing courses were reviewed for information and comparison.
Learner Audience

There are many considerations for designing an effective educational course that will appeal to experienced adults. Many are eager to learn about new ideas while others take courses only because they are required to. Keeping them engaged in the course material requires that a variety of teaching methods be built into the prototype. Group discussion plays a key role in enabling learner participation. This also allows the practitioners to share their individual knowledge with their peers in a non-work environment.

Clear objectives are needed to guide the learners and provide them with concrete results. It is important to ensure these objectives are clear from the beginning and consistent throughout the process.

As the course unfolds and the benefits of evidence-based design are introduced, the facilitator's role is to challenge the learner and encourage reflection. Therefore, course material should be organized in such a way that learners are able to reflect and re-think their current views and practices. The learners will also be given the opportunity to provide opposing viewpoints for further discussion.

Other Information Needed

The review of the literature provided the context for the development of the prototype and potential content areas, however it did not provide adequate information on course design, course delivery, teaching methods, or industry requirements specifically for ID continuing education.

While the literature review described many technical aspects of collecting and interpreting information in an evidence-based design approach, it lacked discussion of the application aspects
of the concept. Case studies provided some insight into how evidence-based design has been applied in practice. Based on experimental learning approaches of “learning by doing” it became clear that incorporating a practical exercise as part of the delivery of course content would be critical for practitioners. Therefore it was necessary and important to contact key informants knowledgeable in design related teaching and learning skills, and existing ID industry expectations in prototype design.

Existing Courses on Evidence-Based Design

Continuing education courses on evidence-based design have already been created in the United States. The topic areas, course structure, and general intention of these courses is identified in their associated documentation. In 2007, Denise Geurin, a professor at the University of Minnesota and author of several academic articles on the subject of evidence-based design created a distance-learning course presented as a CEU (continuing education unit) for ID practitioners who earn credit for learning course material. It is a foundational webinar focused on introducing participants to the primary principles, vocabulary, and methods used in conducting research within ID. Caren Martin is also a professor at Minnesota University and an instructor of courses on evidence-based design. Her CEU condenses the key topics of a full semester university course curriculum into a full day workshop-style course. Students learn through lecture and hands-on activities about finding research resources and identifying appropriate research methods.

The objective of this prototype course is different. What makes the design of this prototype course in this research unique is the introduction of new skills into practice, and having learners consider usefulness of evidence-based design as a deeply rooted part of the design process. As a result the prototype will be designed with the specific needs of practitioners in mind, as well as direct participant feedback.
Case Studies: Project De-Construction and Re-Construction

An understanding of evidence-based design in practice is required to design a course with an emphasis on applying evidence-based design skills to practitioners. Without the benefit of an actual design project, client, or design team a creative method for practical understanding was devised for this research. An exercise similar to a case study was developed.

The process involved identifying past design projects with which the researcher had a significant involvement. While all design projects are a team effort, for this application significant involvement is considered to be knowledge of the pre-design, design development, and contract documents at a minimum. Two of the three projects selected also provided knowledge of the construction administration phase. The selected projects were recent (within the past five years) and details of each were fresh in the researchers’ memory. No proprietary documentation was required from the design firm or clients in order to describe the projects as the intent of this undertaking was not a technical review, but a reflective one. The evaluations were intended to be from a practitioner’s point of view as it is a design practitioner who is creating the prototype, and design practitioners receiving the education on evidence-based design. As identified in an earlier section, reflective practice (a term coined by Donald Schön) is a skill designers engage in, often drawing from memory and professional experience rather than constant review of technical documents making this approach appropriate as an actual method in practice.

Project A was a building owned by a local development company with well established protocols for completing construction and development. They sought a tenant (or tenants) to whom to lease the three storey space for office use and planned to complete construction of the interior to meet tenant needs. The final fit-out of 9,603m² was for an engineering company seeking to amalgamate several satellite offices into one location. The interior designers worked in concert
with the developer/constructor, as well as the end user to meet the needs of all parties. Project B was another office project this time set in an existing high rise building in downtown Calgary. This client had set specific needs to meet LEED® certification for their interior renovation project while building to their corporate office standards. Project C was a multi-unit housing and amenities complex for managers at an oil and gas camp in Northern Alberta. While this particular project did not make it through to the construction stage it involved a significant amount of design development for a structure located in a unique environment, requiring a need for modularity, and speedy construction all while maintaining a high level of design. These three projects were selected because they were fairly large in scope, provided a variety of building types and client needs, and involved three different design teams.

The analysis process for these three precedents required drawing on memory as a design team participant. Re-creating elements of previous projects from memory poses some challenges for capturing all necessary details. However memory recall is often what designers use when embarking on a new project. Key information drawn from experience related to work tasks such as drawings, site visits, and conversations with design team members and clients provide the foundational understandings for a new project. Specific accounts of meetings, incidents, and documents may be fragmented, but the general descriptions provide an overall picture and understanding of project design tasks.

With this knowledge in mind, a de-construction for each project involved diagramming project milestones using the Design Process as a general guide. The Design Process provided categories in which to locate specific tasks from the project. Beginning from the end of the project and moving through to the beginning of the design, the milestones were written in point-form, notes, and memos. Figure 3-3 provides an example of the rough notes produced as part of the exercise. This particular example utilizes words and phrases with some direction and grouping
indicators, but other methods could include more abstract imagery, diagrams, or sketches. The notations are a way of collecting preliminary ideas quickly so that they can be refined later for presentation.

![Project Deconstruction Diagram]

Figure 3-3: Example of rough notes produced as part of the project de-construction exercise.
The projects are further described through a detailed, written description. This description captures a range of project activities including the mundane and extraordinary, successes and problems, and lessons learned and interpersonal connections between project team members. The descriptions for each of the three projects is provided below.

### Project De-Construction A

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Project Type: Office Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Size:</td>
<td>9,603 sq. m of 3.0 floors each 3201m2.</td>
</tr>
<tr>
<td>Date:</td>
<td>2007</td>
</tr>
<tr>
<td>Key Elements:</td>
<td>Complete Tenant Improvement of a new building. Developer's needs and end user's needs.</td>
</tr>
</tbody>
</table>

In the case of this project the developer approached the design firm to design of a three storey office building. This structure was to be part of a larger commercial development located in Calgary and the developer would construct the building with their regular construction team. The developer teamed with an environmental engineering company who was looking for space to amalgamate several of their offices into one. This tenant improvement portion of the project was awarded to the interior design department of the company I was working for at the time. Tenant improvement refers to the interiors portion of the building shell, making it ready for the client's specific needs. Once the contract and schedule were established the project was handed to the project manager and job captain. My role was that of the job captain, the point of contact between the project manager and other designers working on the project with frequent and direct contact with the client, the developer, and construction manager.

The project manager and I attended a meeting with the tenant at their existing office. In this first meeting we were introduced to the team of managers and directors who would act as the decision-makers on behalf of the tenant and users. While these few people would be a part of future meetings pertaining to their respective departments, we would communicate directly with one main contact person. Overall project goals were reviewed and discussed including
amalgamating a number of departments into one main office building, planning for expected growth, and the commitment to take on the top two floors as well as approximately half of the main floor with access to stairs and fire exits. The remaining tenant space was left in the hands of the developer who would find suitable tenants to occupy the remaining space. In addition, to establishing overall project goals, overall design goals should be discussed. Specific questions would pertain to what the tenant has seen elsewhere and liked, environmental sustainability, and clearly identifying what aspects that are currently lacking and desired, as well as aspects which we know to work well already. A “Lessons Learned” report could be prepared to report on these aspects. The first meeting ended with a full tour of the existing facility where the design team took photographs and notes. These were presented in a Meeting Minutes report. In addition to these field observations, user interviews would be carried out. Upon fully understanding the corporate structure the appropriate method of survey would be designed, (individual questionnaire, group interviews, etc.) Questions would be designed to determine future growth in 1 year, 5 year and 10 year projections. Subsequent meetings and tours occurred at the second office facility that would be amalgamating into the new office space. Here, the designers noted a change in overall design and style of the office space ranging from building amenities to the quality of office furniture.

The schematic design phase began immediately. Early block plans were begun in order to have something to present to the client in the next meeting. This process also provided the designers with an early conceptualization of how the departments, offices and other spaces were to be organized. These early plans helped to shape the layout of the three floor spaces based on known adjacencies, private and shared spaces and specialty areas such as the reception, lunch room, fitness room and plotter room. As the meetings went on, the designers gained a better understanding of each department’s wants and needs. The drawings themselves were the main visual and physical holders of all data collected.

At this point I, as the Job Captain, felt I had enough information to create a Conceptual Statement to help to facilitate the design moving forward. This was a method learned in university but not often used in the office environment. The conceptual statement combined the ideas of the client’s connection to nature and the ecological environment. However, as the use of a conceptual statement is not regularly applied and because it was not well communicated to the client who was not familiar with such a method, the conceptual statement did not receive much support and was not used to guide the project further. A conceptual statement should be crafted alongside with the entire design team and especially with the client. A design charette could be held to
provide an opportunity for all participants to contribute their thoughts and ideas which would ensure that all team members better understand the design goals and work towards them.

The schedule dictated that enough time had been spent on the schematic design phase and it was time to move into the design development phase. While schedules are an important part of the work designers do, it alone should not determine when one phase of the project is complete and another begins. Recognizing that moving through each phase of the design process is iterative the schedule should allow for flexibility and adaptation. At this point more detail was added to the floor plans which was transforming from an open-office environment with many grouped workstations to a more traditional private-office configuration. Private offices which were located toward the interior core of the building remained, while additional private offices now lined the perimeter of the building on each floor to allow more senior employees with the status and view. Several factors came into play on this issue including the developers desire to complete work in a traditional manner based on their experience, budgeting and scheduling details. The dichotomy of the developer's wants and needs conflicted with the tenant's wants and needs. While there was no animosity in this regard, what became clear to the design team that a lack of communication of project and design goals was now contributing to problems with design decision-making. The design team’s ability to intervene or change the process was limited by the scope of work outlined in the contract agreement.

Frequent meetings and phone conversations with the tenant and the developer, as well as the mechanical and electrical consultants aided the decision-making process in many other ways. Advancements were made in creating and modifying spaces within the office building to accommodate the needs of the tenant as each iteration provided more and more detailed information. Some detailed specifications were collected on the new equipment the tenant planned to purchase and this aided the design team in the space allocation for these pieces, however many decisions on equipment was not yet made by the tenant. A one-on-one meeting between the project manager and the electrical consultant creatively resolved the issue of standard lighting fixtures on a modified (diagonal) ceiling grid.

While meetings continued, the construction drawings and specifications were well underway. The drawings created in the previous phases continued to grow and show more detail. At this point several other designers were brought onto the project to aid in the production of contract documentation. Floor plans, reflected ceiling plans, interior elevations, partition sections, millwork sections, elevations and details, and door, sidelight and finishes schedules were created with
AutoCAD software. Throughout this process, the tenant signed-off on ideas presented indicating acceptance. The consultant drawings were added and updated along with the architectural drawings.

Finishes selection was also done through a group effort. The first presentation attempted to show the client the full range of finish selections made by the design team. It was presented to the tenant group with less than enthusiastic reviews. The second attempt was spread out over time with only some items displayed to the tenant at a time. First the flooring options were discussed which established the tenants desire to differentiate each of the three floors of the building. Then more materials were added to give a complete overview of how the space would look and feel. By the end of this process a second presentation was not required as the entire team was involved with the decision-making of the interior finishes.

The contract documents including drawings and specifications were completed to the point where building permit application could be made. At this point the mechanical and electrical drawings were collected from the respective consultants and added to the drawings package by the design team. Construction was about to begin.

During construction of the physical space the design team moves into the contract administration phase. This phase includes visits to the construction site to review the progress of the work and to clarify or answer questions the contractor may have. Many phone calls and emails also accomplished this. Questions and answers often result in the need for revisions and for each change, a formal site instruction or change order is required. This paperwork leaves a record of decisions and changes made and may have monetary consequences.

External factors also played a part in some of the changes throughout the project. Major changes in the economy affected the anticipated workload, growth in staff and ability to make decisions on purchases and upgrades due to budget concerns.

After construction was well underway, the tenant had made the final decision to take on the entire main floor, adding ___ sq. ft. to their office space. This posed some design challenges in terms of secure access to the spaces, the location of the main reception, and overall flow and organization of the departments. The addition of more private offices and open work stations mirrored that of the other areas. Throughout the construction process, reports were made indicating a list of completed as well as outstanding items along with progress photographs. Minor changes were
captured as well as larger issues that needed to be resolved. A final walk-through near the construction completion with one member of the design team, one from the developer’s team and several from the contractor’s team was completed. Nearly every room was visited with the intent to review the construction for any flaws.

<table>
<thead>
<tr>
<th>Project De-Construction B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Name:</strong></td>
</tr>
<tr>
<td><strong>Project Type:</strong></td>
</tr>
<tr>
<td><strong>Project Size:</strong></td>
</tr>
<tr>
<td><strong>Date:</strong></td>
</tr>
<tr>
<td><strong>Key Elements:</strong></td>
</tr>
</tbody>
</table>

The client is an engineering consultant firm with offices around the globe. They wanted to upgrade their current local office to meet their growing needs which included a strong sense of environmental sustainability. The client had decided early on to pursue LEED® certification for their new space as they believed the intentions outlined in this building guide coincided with their company vision. LEED® outlines a variety of design strategies and requirements in a document called a reference guide. Design practitioners can use this guide to aid in their design decisions in a way that considers environmental factors such as site selection, construction methods, selection of indoor materials, thermal comfort, indoor air quality, access to views, energy efficiency and others. The client teamed with our company to find and design their new office space. The designers were responsible for the tenant improvement, project management and coordination of construction.

Once the contract and schedule were established the project manager proceeded with coordinating the overall design directly with the client. She was aided by one of the other designers in the department, mainly on technical drawings which captured the design intent. My
role was to aid the project manager during the construction administration portion as well as overseeing the LEED® certification process. This required working closely with the project manager, the client, the contractor and various consultants.

The project manager spent a considerable amount of time with the client to investigate real-estate options to find a space that would best suit their needs. This process required several client meetings as well as site visits to the potential office spaces and meetings with building/property managers. Based on the results of this process an office building in downtown Calgary was selected. The space included one full floor with a connecting internal staircase to a second floor of which only half would belong to this tenant. The floor to ceiling glazing around the perimeter of the floor plate offered views of downtown Calgary as well as the Bow River and the Rocky Mountains in the distance. Access to public transportation, community services such as shops and fitness facilities, as well as recycling programs also add to the desirability of this particular project site.

At this point the design team proceeded with floor plan layouts and finishes selection. This process moved from preliminary block plans to full scale detailed drawings over a period of time. Regular meetings and correspondence with the client and consultants ensured that product selections were made in accordance with sustainable practices from the start.

The design of the interior space was largely decided by the features described in the LEED® reference guide. An open office layout with groups of module work stations and as few private offices as possible was designed. Demountable wall systems divided the spaces when needed with glazed and dry-walled partitions. Demountable wall systems were chosen as it reduced construction materials, dust and waste on site. Glazing provided visual accessibility, views through to the perimeter, and allowed in maximum natural light. Materials were chosen for their low VOC content, ease of installation, and minimal waste on site during installation. Lighting fixtures, equipment selections and plumbing fixtures in the kitchen and washroom areas were selected to reduce water and electricity usage.

All of the above items were captured in a complete set of drawings and specifications. Floor plans, reflected ceiling plans, interior elevations and finishes schedules were prepared for client approval and were used to acquire the appropriate building permits. At this point the project was awarded to the contractor who would lead the construction of the space based on LEED® requirements as planned. The contractor dedicated two people to coordinate the requirements on
Chapter 3: Prototype Design

their side. This was all determined and explained in a general meeting to kick off the construction of the space.

As construction proceeded, the design team was required to organize and attend regular meetings on site to discuss the progress of the construction and any questions or unexpected situations that may arise. Such changes required a formal process of site instructions and change orders to be issued by the design team. All items discussed were captured in Meeting Minutes recorded and issued by the design team, accompanied by progress photos of the site. Inspections were coordinated by the contractor as needed. It would be a good recommendation for a member of the interior design team to be present during the inspection.

No demolition was required for this space. The mechanical systems were re-routed as needed and the electrical and data cabling were re-worked. Plumbing fixtures were installed in the core washrooms, the kitchen area and the upstairs office space. Millwork in the reception, copy area, kitchen and print stations were installed. Carpet and ceramic tile were laid and walls were painted. Demountable wall structures, systems furniture and window coverings were installed.

Delays in product ordering and other factors contributed to scheduling delays for the overall project. Changes in construction management staff also posed unforeseeable problems and delays. Problems such as mould found behind the drywall in the men’s washroom and asbestos in the exterior structural columns had to be dealt with on site.

The LEED® documentation proceeded in parallel to the construction phase. I was responsible for coordinating the completion and organization of all required paperwork, forms, and evidence documentation in each category as determined by the CaGBC (Canada Green Building Council). This was a learning process for all members of the design team including the client, consultants and contractor. Documentation was checked and re-checked while referring to the guidebook for clarity and explanations of the details of the specific requirements. Calculations were made and drawings and descriptions were created to complete the documentation.

Upon completion of the interior renovations a series of deficiency walk-through were conducted by members of the design team. The intent of these visits was to look for inconsistencies, incomplete or missing items, and damage from furniture move-in that require cleaning or touch-up before handing the space over to the client. A master list was created and items were marked as
“complete” when done. Despite sharing this list with all parties involved, fixes were slow to be complete and several walk-through’s continued to occur.

An Operations and Maintenance Manual was created and provided to the client. It contained all the specifications and product “cut-sheets” for all equipment installed in the project.

After client move-in the design team was contacted by the client with concerns of failing items. Circuit breakers were tripped when both microwave ovens were used at the same time and the low-flow toilets were having difficulty flushing properly. These items were forwarded to the engineering consultants and contractor for repair.

Completion of the LEED® documentation carried on beyond the client move-in date. Final documents required to be filled in upon follow-up tests of the mechanical and electrical systems while other items required additional time to gather supportive documents.

Reception lobby of project space.
Project De-Construction C

Project Name:  
Project Type:  Temporary Private Residential and Community Amenities  
Project Size:  24 residential units each at 500 sq. ft. plus amenities.  
Date:  2006  
Key Elements:  Unique design of residential amenities in extreme Northern Alberta climate for Oil & Gas clients.

The client is an Oil and Gas company in the midst of constructing their oil extraction facilities in Northern Alberta. Upon completion of construction, a management team is to move into the area to facilitate the daily operations of the site. They will require housing and amenities in communities called “camps” for extended periods of time (several weeks) before a break from work. Depending on individual lifestyle, the managers may travel home to another city, or remain on site. The client wished to provide a high-class facility that sets them apart from the typical housing shelters found in the area.

Typical housing structures for oil and gas companies in the area are constructed of modular, pre-fabricated trailers. These structures are ideal for temporary uses because they are constructed in a warehouse, easy to transport and to erect on site, and are usually considerably less expensive to purchase. However, with the abundance of similar camps being constructed throughout the province, modular trailer manufacturers were back-logged and high demand had driven the costs sky-high. This did not coincide with the client’s immediate needs. Furthermore, the project is considerably smaller in comparison to some other projects in the area and the client had the flexibility to look for alternate solutions. The design team was challenged to investigate and design structures which met the client’s unique needs.

The design team consisted of the project manager, the architect, and an interior designer. My role was that of support to the project manager and architect. My duties included participating in client meetings, background information gathering, report writing and creating conceptual drawings and renderings.
Initial meetings with the client helped to establish the client’s goals and difficulties they anticipate. Meeting minutes were taken as a record of the discussion topics. Key factors included sustainable best practices, providing a high-quality and better-than-typical facility to their employees. This was to be a “turn-key” facility, meaning that once the project was complete, the client could simply move in. All furniture, fixtures and equipment would be installed, the beds would be made, cutlery was placed in the drawers, and towels would be placed on the towel bar in the washroom.

Early in the process the design team discussed conceptual design ideas including modular construction, pre-fabrication options, transportation restrictions, site restrictions, labour costs and availability, ecological factors, local authorities, and other items. Each team member contributed their knowledge on these subjects and further investigation was to be done.

The architect visited the client’s current facilities on site to gain a better understanding of the camp lifestyle. Photos were taken of the proposed site and near-by lake. Ariel photos were provided by the client. Upon his return he verbally described his experiences to the other team members. Next time, an agenda and formal strategy for conducting field observations should be created and more than one team member should participate. Many photographs of specific areas should be taken and catalogued. Field notes including detailed times, locations, and contacts should be taken to record as much information as possible for future analysis.

I began writing a Design Basis Memorandum (DBM). The client asked for this specifically but it was a new concept to me. Starting from scratch the DBM became a “living document” with information constantly being added to it as the design process progressed. It acted as a master record of all information to follow. It would be presented to the client intermittently as well as a final document at the end of the project.

My information gathering focused on modular construction products and methods. The other members of the design team contributed the information they had gathered as well. These verbal exchanges were recorded in the DBM.

The architect also visited modular trailer manufacturers. As we learned about these specifications it became clear that alternative designs must conform to very specific regulations.
Simultaneously, the architect and interior designer worked on sketches and conceptual designs. The architect led the design initiative with a modular concept driving the design. Concrete panels that would fit onto a transport truck without requiring special road closure permits. Panels made up the floor, walls and roof of each living unit. On the interior, all elements were design as built-in millwork including the kitchen counter, living room furniture and pocket doors. All HVAC, plumbing and electrical systems were routed through the millwork “walls” with access to fresh air and sewage through the main fireplace chimney and central hub beneath the structure. The building was designed to be supported on piles driven into the ground which would minimize the ecological impact on the site. Each living unit had its own private entrance but a single “pod” was made up of eight units.

As the project and the design became more detailed, additional designers were brought into the project to help gather, compile and present information. A detailed FF&E spreadsheet was prepared. Finishes were selected for the floors, walls, millwork, furniture, and even bedding and window coverings.

Computer simulations of the construction of the units were prepared and presentations were made to the client. The client was impressed and expressed satisfaction that the design goals were reached. The project, however, was never constructed due to external factors.

Computer generated conceptual image of the project interior space.
Chapter 3: Prototype Design

The re-construction process again followed the Design Process this time starting at the beginning and working through the phases. Beginning with an understanding of the project needs, the design problem was defined, and then a methodology for gathering and recording data was developed with an evidence-based approach applied. The method was slightly different for each project since each had unique needs but some generalities are easily identified such as reviewing of previous projects of a similar type, locating and reading published articles on key knowledge areas, and presentation of programming material to the client are included in this imagined scenario. Figure 3-4 provides an example of the rough notes produced as part of the exercise for one of the projects. As with the de-construction part of the exercise, this particular example utilizes words and phrases with some direction and grouping indicators, rather than abstract imagery, diagrams, or sketches.

To determine results from this process, a comparative analysis of the de-construction and re-construction of each of the three projects was done with attention given to the differences and variations between the actual approach and the proposed evidence-based design approach. As with the case studies themselves, the Design Process provided a guide for the analysis where the phases of the process served as the main categories while sub-categories emerged with the additional tasks that would be performed in each phase. The comparison shows that the revisions which would have likely been made if applying an evidence-based design approach were identified mainly as problem definition, and data gathering and analysis completed in the early stages of the Design Process. The presence of a post-occupancy evaluation is another significant difference between the two approaches. (Figure 3-5)

The information from this comparative exercise was also evaluated from a creative perspective. In addition to the issues identified using the Design Process, other perceived differences were further explored in a written format. They include a variance in the amount of time spent in each
Figure 3-4:
Example of rough notes produced as part of the project re-construction exercise.
phase, particularly less time problem-solving during the construction-document or contract administration phases if additional time were devoted to more complete problem definition and analysis; new approaches to document creation and storage to accommodate the additional data gathered; greater overlap of phases as a more iterative approach (returning to the problem definition often) is used; an increased understanding of value of the final deliverable. It is speculated that the additional time spent on front-end data gathering/analysis tasks will result in higher quality design and client satisfaction. While these findings are subjective, the processes aided the research in identifying possible gaps and areas practitioners may question when presented with evidence-based design in the future course demonstration. This influenced the design of the course to be more explorative, rather than prescriptive. An attempt to communicate these concepts visually produced unique images which helped to identify what the perceived barriers and advancements may result from a research-based design approach. (Figure. 3-6 to 3-8).
<table>
<thead>
<tr>
<th>Phase</th>
<th>Sub-categories</th>
<th>De-Construction</th>
<th>Re-Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Design (PD)</td>
<td>Programming</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Problem Identification</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Review of past POE's</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Visit existing site</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Interview clients and user groups</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Literature Review</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Adjacency Matrix</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Priority List</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Presentation to client</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>LEED checklists</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Client Meetings</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Site Selection</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Contracts</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Scheduling</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Budgetting</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Design Development (DD)</td>
<td>CAD Drawings</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Design Meetings</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Product Sourcing</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Finishes Selection</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Construction Drawings (CD)</td>
<td>CAD Drawings</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Specifications</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Client sign-offs</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Permit Application</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Contract Administration (CA)</td>
<td>Construction</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Supplemental Instructions; Contemplated Change Orders</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Product Lead Times</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Scheduling</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>LEED Administration</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Post Construction (PC)</td>
<td>Deficiency Walk-through</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Post Occupancy Evaluation</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>O&amp;M Manual</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Warranty Review</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Figure 3-5: Comparative Analysis of De-Construction & Re-construction Exercise
Chapter 3: Prototype Design

Figure 3-6: Visual interpretation of perceived time spent in each scenario expressed in units.

Figure 3-7: Visual Interpretation of perceived overlaps of phases over time.

Figure 3-8: Visual Interpretation of perceived increase in time spent on projects with an EBD approach.
As an outcome of the de-construction and re-construction process this research was informed in several ways. The exercise provided examples of the practicalities an interior designer may likely encounter in a design situation that cannot be captured in literature. While case studies may provide various examples of unique situations, the reader does not get a full understanding of the project nuances and the cases published may have a positive slant. By examining projects first-hand rather than through published case studies a more reflective, rather than mechanical perspective is likely to reveal characteristics that other designers can identify with. Drawing on experience is an integral aspect to being a professional. Experience informs design knowledge.

Particularly, the main topics identified by this exercise included emphasis on the programming phase, increased complexity, presence of post-occupancy evaluations, decreased time in the construction documentation phase, recording and managing information, increased time spent on a project overall, overlap of phases, and increased sense of value. As echoed in the literature review most of the research methods occur in the programming phase. By nature, adding tasks such as reading, recording data, and presenting new information will require additional time. A perceived decrease in time spent in the construction document phase is a direct result of more planning done in the programming phase. Sometimes the schedule of a project demands designing to continue during the development of construction drawings where details are often finalized. The suggestion is that with adequate planning early in the Design Process, less time will be required to determine new design solutions at the later phases. The presence of post-occupancy evaluations (POE) is a subjective observation dependant on the researchers’ experience. Post-occupancy evaluations are not offered by all design firms as part of their scope of services, while they may be standard practice in other firms. Should this final phase (post-construction) be a regular component in the specific situation no additional time may be perceived for the project in general. However, should a post-construction phase including a POE be considered an added component then more time for the project will be noted. The concept of
overlapping phases of the Design Process refers to the iterative nature of design. The designer would refer back to the research and information gathered at the beginning more than once to check and verify that design decisions are sound.

The topic of complexity, as determined through this practical exercise, is described in connection with the references to increases and decreases in time spent in each phase. As stated, the iterative design process should increase time needed in the early planning stages as well as follow up post-construction, while decreasing production time of contract documents (Figure. 3-9). Complexity may also refer to the programming phase itself with the addition of multiple tasks and presentation of data, then how this information is used in later phases.

Figure 3-9: Visual Interpretation of perceived increase in complexity shown in a visual format: an iterative, rather than linear outcome with an evidence-based approach.
Value is gained from increased knowledge of the project needs which would likely result in a more comprehensive design solution in the end. Value is determined by the design team on evaluation of their own processes, as well as by the client. These ideas are difficult to measure and are largely based on perceptions rather than direct experience and clearly require considerably more investigation. It was determined that the most practical way to introduce such large topics in an educational format was to first induce introductory discussion, and then allow the practitioners to explore these issues within the newly learned context rather than the instructor presenting conclusions. As a result, these topics were later included in the discussion portion of the course design to stimulate debate and new ideas about research-based solutions in interior design.

Studying the methods of an evidence-based design approach in this way was helpful in learning its core concepts. This suggests that other learners would likely benefit from a similar exercise in a learning situation since first-hand experience is an excellent method for learning new skills. As such, this hands-on method will be utilized in the forthcoming course design. A studio portion to the course would be developed whereby learners will have the opportunity to practice similar hands-on activities that would help make the material stick in their minds and discover possible topics for further discussion and investigation.

**The Continuing Professional Education Process**

ID professionals registered with their local authorities must complete a prescribed number of mandatory continuing education points to maintain credentials. This number may vary from province to province in Canada. However, Brookfield’s analysis identifies that some believe these mandatory courses do not necessarily equate to a measurable improvement in practice (Brookfield 1986). This leads to the question of the quality or perhaps the delivery of the
education to explain why it may be unsuccessful. There is little specific literature available on creating courses for ID practitioners. Therefore prototype course development required the melding of information from several available sources to suit the needs of the prototype. These sources were the Interior Design Continuing Education Council (IDCEC) Presenter’s Guide, Continuing Education Units (CEU’s) on creating courses developed by Interior Design educators and issued by the IDEC, and experience from teaching and learning workshops.

In order to create an effective course an understanding of both the general strategies for course design and the specific needs an ID practitioner would be required. Knowledge of the standards and expectations of a CEU as described by the IDCEC was a good starting point. Then the researcher took advantage of the available workshops offered through the University of Calgary’s Teaching and Learning Centre (TLC) which proved invaluable for information on course design as well as practical teaching methods. Some of the concepts learned in the workshops were also found in the requirements for CEU courses outlined in the IDCEC’s Presenter’s Guide. The methods learned from these various sources were transferred to a professional environment in the creation of the prototype.

The IDCEC Presenter’s Guide was created to ensure CEU courses submitted by individuals and groups meet certain standards and consistency. It contains information for both reviewers and those submitting the course including the submission process. Reviewers are usually volunteers from various regulatory organizations in North America. Besides checking for completion of the required documentation, reviewers are instructed to judge the completeness and relevancy of course content in that it relates directly to interior design, that a course outline includes learning objectives and estimated time spent on each item, and ensure the content does not promote a particular product or company. They judge the appropriateness of qualifications of the instructor and check their references in order to comment on their ability to instruct effectively.
Chapter 3: Prototype Design

The Presenter’s Guide provides information for both the course creator as well as the reviewer. It outlines the greater context for CEU’s within IDCEC’s mandate and the process for getting the course approved. While it lightly touches on core learning concepts such as “learning objectives”, “intended audience”, and “course outline” it does not go into any depth on these concepts or how to achieve them successfully. The Guide focuses more on the process for submitting and maintaining courses within the IDCEC structure but does not specify what characteristics are most effective in teaching and learning.

While there were some parallels found between the described requirements and fundamental educational techniques such as the ADDIE and BOPPPS models (described more fully later in this chapter). However, while the instruction to include learning objectives was provided, no instruction or reference was given to aid the course designer in developing them. In general, the Presenter’s Guide provides more information to course designers on the expectations of the reviewers and, by extension, the IDCEC, than instruction for presenters on how to develop effective courses. The information gleaned from the Guide did provide this research with insights toward course design by identifying specific elements required for a CEU including identifying the course as basic, introductory, or advanced in level, and a designation as a course under the health, welfare, or general knowledge categories.

Since the inception of this research, the IDCEC website has been re-designed and now offers clear links to updated documents including the “Provider Instruction Manual” and the “Reviewer Instruction Manual.” Again, these documents provide information on course submission processes, content restrictions, and technical requirements for providing credit but do not explain or describe approved development parameters, or the extent of teaching knowledge expected by the course provider. This suggests CEU’s submitted to the IDCEC may vary greatly in the quality
of instruction. As a result, the design development of the prototype did not rely heavily on the information provided by the IDCEC guidelines and instead looked to other sources to aid in course development. The published guides and manuals can be used in the future should this prototype be submitted for review and approval in preparation for implementation.

In reviewing the IDEC and IDCEC websites a number of CEU’s were offered in the categories of teaching, course design, and studio project design. While most of the course descriptions indicated they were designed for instructors of undergraduate students, one of the courses titled “How to Dodge the Tomatoes - Tips for CEU instructors” by Stephanie A. Clemons (2003) is described as instruction useful “especially when teaching adult learners”. This CEU was purchased and reviewed to inform this research as it was excitedly the precise information required for course design and delivery for ID practitioners specifically.

“How to Dodge the Tomatoes” introduced the concept of andragogy which is described by Clemons as instructors “thinking about working with adult learners.” It assumes adults desire self-directedness, experiential techniques such as discussion, real life application, and application into immediate circumstances as further defined by Brookfield (1986). The first step is to identify specific traits of adult learners which are different than those in children. These include thinking of the learners who are life-centred and intrinsically motivated. Clemons suggests asking learners for work-related anecdotes of failures and successes in their professional experience, and to teach with case studies, examples of others’ design success and failures. Acknowledging adult learners who are designers, this CEU emphasizes the provision of practical knowledge, participatory learning, and explanation to learners of why they are learning what they are learning. This concept has been interpreted into the provision of the Learning Objectives as further described in the TLC workshop section of this chapter which clearly state what the learners will be able to do by the end of the course. "How to Dodge the Tomatoes" identified three types of
learners: goal- activity- and learning-oriented and encourages the instructor to evaluate their own teaching style in order to better adapt to various learning styles when needed. These needs were accommodated by providing a combination of activities, lecture, and visual presentation designed throughout the lecture. The overall design of the prototype followed concepts of treating the learners with respect in terms of their experience, intelligence, need for efficient use of time, and as having their own unique ways of learning. Clemons (2003) states that many designers are visual learners; an assumption shared by this research. As such, a visual presentation was included in the development of a new CEU.

In addition to better understanding ID practitioners as learners, The Stephanie Clemons CEU also provided suggestions on teaching techniques that would help to engage adult learners who are active in their learning. These include class discussion, peer learning, collaborative learning, affective learning, and skill development. Her course emphasises good use of time by the instructor’s preparedness, capturing the learner’s attention quickly, and being prepared for lethargic participants. Throughout the presentation Clemons assumes courses are taught at the end of a work day or work week. With this option in mind, the researcher considered either an evening course or a week-end course for the prototype demonstration. This will also tie in with Clemons’ reflections on the importance of including breaks in the course. Some warning of unruly, overly talkative, or otherwise aggressive behavior was given. To this, Clemons suggestions to instructors is to be prepared with follow up questions directed to the group or to an individual, make a change in the activity or teaching method, or active listening on the part of the instructor.

Another CEU available from the IDEC website titled Interior Design Course and Project Preparation was purchased and reviewed for its content on course design techniques. This course was offered in a two part recorded online format. With less emphasis on learner analysis,
this course focused on developing learning outcomes, course content, and assessment tools for instructors teaching at a university or college. Although this instructional unit did not address the specific instruction of adult learners, it did provide information on gathering information for content building and reiterated points on course design structure and resources. Suggestions to prioritize and on the sequencing of course content included completion of an inventory survey, however this was largely dependent on structuring a semester-long course into smaller units which would not necessarily work in the delivery of the prototype unless it was to be delivered in a multi-session format. Even in a multi-session course a CEU is very different from a semester-long university course in that it does not require minor and major assignments or multiple assessments. A single session course loses the opportunity to introduce some teaching methods that may help maintain learner engagement such as a field trip, guest speaker, or large project, all of which are largely impractical in this case due to time limitations. More feasible instructional methods described in this CEU were desk crits, a studio learning environment, and making use of technology to delivery course material were considered in the development of the prototype. This research adapted suggestions for assignment development such as writing clear instructions, providing examples, and describing why the assignment is relevant. This CEU, however, offered little instruction regarding teaching methods that would be appropriate for experienced practitioners. Such information was gained through participation in several workshops on the University of Calgary Campus.

Figure 3-10 shows a comparison of the content in each of the CEU’s reviewed.
<table>
<thead>
<tr>
<th>Course Analysis Category</th>
<th>How to Dodge the Tomatoes</th>
<th>Interior Design Course and Project Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learner Audience</td>
<td>andragogy - instructors</td>
<td>learner inventory survey</td>
</tr>
<tr>
<td></td>
<td>“thinking about working with adult learners.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>intrinsically motivated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>share professional experience (anecdotes)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>learning from peers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>practical knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 types: goal-orientated;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>activity-orientated;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>learning-orientated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>visual learners</td>
<td></td>
</tr>
<tr>
<td>Course Content</td>
<td>developing learning outcomes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>prioritize and sequence of topics</td>
<td></td>
</tr>
<tr>
<td>Course Context</td>
<td>acknowledging that everyone is a designer with varying experiences</td>
<td></td>
</tr>
<tr>
<td>Practical Constraints</td>
<td>effective use of time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>be prepared for class</td>
<td></td>
</tr>
<tr>
<td></td>
<td>get learners' attention quickly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>be cognisant of lethargic, unruly, and overly talkative learners</td>
<td></td>
</tr>
<tr>
<td>Teaching Activities</td>
<td>facilitating discussion</td>
<td>desk crits</td>
</tr>
<tr>
<td></td>
<td>adapt to various learning styles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>use of technology to present material</td>
<td></td>
</tr>
<tr>
<td></td>
<td>clear instructions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>examples</td>
<td></td>
</tr>
<tr>
<td></td>
<td>describe why the topic is relevant</td>
<td></td>
</tr>
<tr>
<td>Learning Environment</td>
<td>likely after work (evening)</td>
<td>studio</td>
</tr>
<tr>
<td></td>
<td>field trip</td>
<td></td>
</tr>
<tr>
<td>Learning Activities</td>
<td>participatory learning</td>
<td>field trip</td>
</tr>
<tr>
<td></td>
<td>class discussion</td>
<td>guest speaker</td>
</tr>
<tr>
<td></td>
<td>peer learning</td>
<td>large project</td>
</tr>
<tr>
<td></td>
<td>collaborative learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>affective learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>skill development</td>
<td>group project</td>
</tr>
</tbody>
</table>

**Figure 3-10: Comparison of CEU content.**
The University of Calgary’s Teaching and Learning Centre offers a number of workshops for graduate students and faculty who wish to learn or enhance their teaching skills. The workshops that informed this research included: T.A. Prepardness, Course Design, Instructional Skills Workshop, and the University Teaching Certificate. In total, over eighty hours of instruction were completed as well as additional time in preparation of assignments, mini-courses, and on-line discussions with other workshop participants.

The skills and methods learned in the Teaching and Learning Centre workshops are meant for application for a post-secondary education environment. Most of the examples discussed were of university students and classes, and the other learners were graduate students and faculty members. However, the skills learned in these workshops were transferred to a corporate learning environment. From the Instructional Skills Workshop and the University Teaching Certificate, the main items of consideration included teaching through activities, facilitating group learning dynamics, and thinking of students as learners who are already coming to the class or course with knowledge and experience. Rubrics were discussed as an assessment tool to determine clear evaluation metrics for assignments. While the demonstration of the prototype would not ask the volunteers to be formally evaluated a preliminary rubric was developed to demonstrate how the final version of the course would be delivered. From the Course Design Workshop the specific considerations were: understanding the models for course design and lesson planning; writing learning objectives according to multiple levels of cognitive learning; and various analyses in preparation for optimum course development. Specific comprehension learned from the TLC Workshops include:
• **Awareness of the needs and skills of the learners.** The instructor should clearly define what the class will offer the learners and define expectations for both teaching and learning.

• **Identification and appreciation of various learning “styles”** Considering that some individuals may learn best by visual, auditory, or kinaesthetic activities while others may do better in large groups and still others prefer individual and non-social learning environments. All this indicates that a variety of methods should be employed to reach a greater number of learners.

• **Consideration to the previous knowledge learners have before coming to class.** By identifying what learners already know, their knowledge can be helpful by asking those students to help in the teaching of other students. Group discussions, individual assignments, and the overall learning of all students are often enriched as a result.

• **Conducting learner analysis, creating learning objectives, and developing course content.**

• **Design and implementation of evaluative tools.** Formative and summative feedback work in combination to provide the course creator/instructor with tools for refinement and improvement, as well as identifying those aspects that work particularly well.

• **Self reflection:** used both as a form of learning by the learners and as a form of course evaluation by the instructor.

• **ADDIE model for course design**\(^4\).

• **BOPPPS model for lesson planning.**\(^5\)

The workshops provided participants with a wide variety of teaching and learning scenarios in both instruction and practical experience. Being among fellow researchers, students, and

---

\(^4\) The ADDIE Model was adapted from the original use by the U.S. Army Training and Doctrine Command in their document "Interservice procedures for instructional systems development", 1975.

\(^5\) The BOPPPS Model was originally developed by Douglas Kerr, University of British Columbia, 1978. It is widely used in educational studies for lesson planning.
instructors was the make-up of the environment. Exposure to the experiences and methods of others with teaching experience was beneficial in understanding some of the less common aspects of teaching and provided a wider perspective on the topic. However, while eighty hours of instruction in workshops is considerable in learning fundamental and practical skills, it does not equate to significant training in the field. Experience can only be gained through time spent in the “classroom”. These workshops offered preparatory skills for this research that would enhance future practical experience.

**Step Two: Prototype v 1.0**

The ADDIE model (introduced on the previous section) was followed in the overall design of the course. Its phases include analysis, design, development, implementation, and evaluation. This is a general guideline with numerous sub-categories within each phase that help an instructor develop a course, deliver it, and evaluate it at all levels. While other models are available for course design, the ADDIE model was followed because it closely resembles the Design Process. The analysis phase of the ADDIE model is much like the Pre-design and Schematic Design phases of the Interior Design Process where information is gathered to better understand the design problem and confirm this understanding with the client. The Design phase of the ADDIE model encompasses many aspects of the Design Development phase. This is where the main concepts are created and refined. The iterative approach in both streams calls for re-circulation back to the analysis phase to identify details in order to move forward. The Development phase of the ADDIE model resembles the Contract document phase of the Design Process since this is when the documents are created in both cases. The Implementation phase of the course design model is similar to the Construction Administration process in ID and where unexpected issues may arise and require resolution. Evaluation in the ADDIE model refers to summative evaluation and can be likened to a Post-Construction phase of a building project. Figure 3-11 illustrates this concept.
Chapter 3: Prototype Design

ADDIE: Analysis

The first phase of the ADDIE model involves analysis of the course context, the learners, and what should be included in the course content. In the Course Design Workshop, context was described as the way a single course fits in with a larger educational program. Even though the prototype is not considered part of a larger program, many of the topics discussed in this workshop are equally relevant in a single class. For example, the ideas of prerequisite knowledge, similar courses on the same subject, class size, requirements for credit, when the course would be offered, and understanding of the learning environment apply to an individual class. In the case of CEU's for professional credit, single courses are the norm. The larger context, then, is the overarching issues in the industry including the topics of design education, researching, and professionalism. These topics are the roots that support the creation of a prototype to disseminate information of evidence-based design to practitioners. As the design of the course developed, (learner analysis, determination of content, and how the course will be delivered) were issues also considered with each step.
Learner analysis included the determination of who the learners will be; in other words, who will make up the intended audience for this course? This course is designed for ID professionals already practicing in the field. A professional interior designer is defined by the standards for education, experience, and examination set forth by the NCIDQ described in chapter one. Because the issue is somewhat complicated by differences of educational and professional credentials required in each province, these factors were minimized by recruiting only Registered Members of the IDA. This approach ultimately excluded some practitioners who may not be registered, or may have chosen not to write the NCIDQ exam, but otherwise meet the qualifications of an ID practitioner through education and experience. While limiting, this approach simplified the recruitment process and supported the researcher’s goals of maintaining consistency in the sample group.

It is perhaps a safe assumption that learners of any course will likely include ID practitioners with varying degrees of education, years and type of practical experience, and a range of demographics. Practitioners may or may not have experience in all aspects of the design process based on their individual roles and career goals. Experience in technical drawing, business practice, project management, and leadership will vary greatly as would the range in age, ethnicity, and learning preferences. It was assumed that while designers with more experience may gravitate to courses with higher levels of learning outcomes, they may not necessarily be familiar with course topics and still require introductory material in order to achieve all learning outcomes. This suggests that the proposed course should include introductory material in the form of pre-requisite readings and/or instructional time devoted to review of fundamental topics. The other demographic statistics would not significantly add to the value of this research.
An exercise in the teaching and learning workshops included a brief review of the concepts of various learning styles. Several learning inventories are available to determine how an individual may prefer to learn. They range from personality indicators such as introvert/extrovert, to determining visual, tactile, or auditory learning styles, to the concept of multiple intelligence types. While these concepts were not reviewed thoroughly or applied directly to the learners in the demonstration group, the notion of variety to reach an array of individuals was considered while developing the course. In example, combining audio and visual input, providing materials for note-taking for those who may need it, and both individual and group/pair work were all designed into the prototype.

Content analysis in the general sense includes the overall organization, development, and delivery of course topics. How these topics are determined often vary from review of previous versions of the course to alterations based on evaluations and feedback. In the case of this research, an entirely new course was to be developed with no previous content or evaluations to analyze. Instead, determining the content became an iterative process with brainstorming many possible topics, reducing this content through grouping, relevancy, and time considerations, reflection on learning activities that would likely be well received, and possible constraints. This content-building process was influence by the methods used to understand the topics of evidence-based design and adult learning including the information found in literature, practical exercises, and workshop experience. Figure 3-12 illustrates a brain-storming and grouping exercise.
Figure 3-12: Preliminary Concept Map of Possible Course Content Areas
ADDIE: Design

The process of determining course content melds into the Design phase of the ADDIE model. At this point, the resources required for learning activities, presentation, and evaluation are planned in more detail. Determining learning objectives, lesson planning, and determining the resources that will be required for the course are done in this phase.

All courses should include a number of learning objectives/outcomes which help to focus the content and indicates to students what to expect from the course. They usually follow a formula including the identification of the audience, the behaviour, and the condition under which the behaviour shall proceed (an ABC model):

“By the end of the lesson, students will be able to evaluate the realities of applying and evidence-based design approach through group discussion.”

In this example the audience is identified as the “students”, the behaviour is to “evaluate”, and the condition is “through group discussion.” The crafting of the learning objectives into concise, clear, and direct statements aided the content selection process greatly by shaping, defining, and bringing into focus the main goals of the course itself. These were designed in conjunction with the S.M.A.R.T. acronym (often used in goal-setting exercises) indicating that successful learning objectives are specific, measurable, attainable, realistic, and learners have a sufficient timeframe in which to achieve the outcomes. Learning objectives also followed the suggested hierarchical impact of Bloom’s Taxonomy⁶ by which learning outcomes ranged from simplistic comprehension

---

⁶ Bloom’s Taxonomy is the general term used to describe a collective effort by education specialists to classify learning domains. While several variations of the model have been applied since its inception in 1956 the general concept is widely accepted in circles of educational pedagogy.
and gradually move toward more complex results involving application, evaluation, and design on the part of the student.

In addition to determining course topics, the manner in which the content is to be delivered should be resolved in the design phase of the ADDIE model. A verbal lecture will be supplemented by providing a visual reference in both text and images in a visual PowerPoint presentation. This served as the main spine of the course content delivery as it is a traditional and familiar format for communicating information and is supported by most computer equipment. For this, an electronic presentation screen or projector and laptop combination would be required for the presentation. This is an important consideration for course delivery in multiple locations which may include classrooms or meeting rooms. Additionally, a condensed version of the presentation should be provided to all learners in hard-copy format to aid in any individual learning processes such as note-taking and as a source of reference material. Other communication tools would be used in the various learning activities and an internet connection will also be required for online demonstrations and exercises. If this is not available, a supplemental means of demonstrating online information must be considered. In this case, visual material could be re-created on a paper or white-board display, and print-outs of internet pages could be provided in the absence of an internet connection.

Based on Schulman's (2005) signature pedagogies regarding a studio learning environment for designers, a hands-on approach with interactive learning activities would replicate a studio atmosphere. The learning activities planned included group discussion either in small or pair-and-share format and/or open discussions to the entire class. It is anticipated that with each iteration of the course taught, some of the discussions, examples, and anecdotes will be added to the course content and ultimately contribute to the overall course design. The course includes an assignment designed to allow learners to reflect on the information covered in the class and then
demonstrate their own interpretations of it. The assignment is designed to allow creative responses and formats which demonstrate the student’s ability to apply evidence-based design to a project simulation. Each designer was asked to think of a past project with which they are very familiar to use as a case study for this assignment. The following figure illustrates preliminary ideas of what the course might look like.

Figure 3-13: Preliminary sketch of what the prototype course would look like.
**ADDIE: Development**

Following the design phase of the ADDIE model is the development phase during which course materials and supportive documents such as audio/visual presentations, handouts, online material, assignments and evaluations are prepared. Specific documents developed for this course included the course outline complete with learning outcomes, learning and teaching activities, and list of resources; agenda; PowerPoint slides; lecture notes; handouts including worksheets, exercises, case studies, reference list; and assignment handout with examples and grading rubric (included for review and discussion but not used for grading in this experimental phase). For the purposes of gathering data through participant feedback, special evaluation forms were created. Other logistics such as determination of time of day, transportation, meal incentives, etc. were also determined in this phase. All of the preceding information is captured in the lesson plan.

The development of the lesson plan allows the instructor to organize and prepare course content and delivery in greater detail. The structure for the lesson plan for this course follows the BOPPPS model as introduced in the Teaching and Learning Centre workshops. This acronym stands for: bridge, objectives, pre-assessment, presentation, post-assessment, and summary. While some variation of the sequential order of phases is not unusual, the general order of events begins with a bridge - an activity or statement which helps to connect the learners with the upcoming material with an indication of how it is current, relevant, and relatable. The bridge for this course was a personal anecdote by the instructor regarding her experience with the LEED® exam. The anecdote describes a learning challenge and how the challenge was overcome through application of the concepts in practice. This anecdote was selected because a personal experience helps to create a sense of trust and openness between the facilitator and learners and encourage the same among the group members. It was also a topic that most of the learners
could relate to in some way, whether they had experienced the LEED® exam themselves, or are familiar with the concept directly or even indirectly through their ID practice.

The Learning Objectives were then described to the group to establish what the course will be about, and what information and skills they will be able to take away as a result of their time and commitment. This is important to identify especially to adult learners who want to ensure they will be getting value out of their time commitment.

The first “P” of the BOPPPS acronym indicates that a pre-assessment should be employed whereby the instructor asks a question(s) or conducts an activity to gain an understanding of the knowledge level students already have on the subject. Should the learners have a very limited background on the topic, then the instructor knows to spend more time on introductory material. However, a group of more knowledgeable learners indicates that higher-level learning topics and activities should be the focus. The pre-assessment activity for this prototype was prerequisite reading, however rather than assigning reading material the learners were asked to find piece of information of evidence-based design on their own. These would be shared with the group allowing everyone to contribute their thoughts early on.

The bulk of the lesson focuses on the presentation of topic material with detailed planning on the activities, resources, and timing of each. These activities may include listening, speaking/discussing, writing, watching, or a hands-on or field activity, all of which are considered in the participatory learning phase of the model (P2). The lesson plan should indicate which activities are completed by the learners, and which are completed by the instructor. The presentation of the prototype included: lecture, visual presentation of lecture material, a demonstration of an on-line resource for gathering research literature, and a visual activity identifying the stages of the design process with wall decals. The activities were: identify the
elements of the design process and the tasks performed in each phase, identify possible advantages and disadvantages to implementing an evidence-based design approach in practice, and discussion to take full advantage of a group learning environment. In these activities, the learners are able to identify the factors they believe to be relevant.

Upon completion of the course the instructor should include a post-assessment activity (P3) to gain an understanding of how well the students absorbed the material. This may take the form of an assignment, exam, discussion, or other means of evaluation as appropriate. Finally, a summary of the course should be presented to the learners which refers back to the opening statements and learning outcomes. In this case, the post-assessment would be offered as a take-home assignment intended to both reinforce course topics and act as an indication of how well the learner understood the material. It was designed to allow learners time to reflect on the topics discussed, interpret the course content in their own way, allow time to locate and review other resources the learner may wish to pursue, and allow those learners who flourish in independent study, rather than group work an opportunity to succeed. The researcher (acting as instructor) would then meet with each learner to review course content, and evaluate the effectiveness of the course on various levels: understanding of the evidence-based design content, professional development requirements, and relevancy in practice. This portion of the course doubles as an additional summary and review.

**ADDIE: Implementation**

The instructor should be able to deliver the course to a group of learners with confidence and preparedness. However, teaching a new course for the first time includes additional obstacles, unknowns, and increased difficulty from lack of experience. A good course will allow for, and a good instructor will be prepared for alterations, revisions, and substitutions when required. Unknowns are a fact of implementing a course because each time the course is delivered
different learning groups will be present, different levels of engagement and participation will take place, and any number of unexpected issues may arise resulting in new ideas and perspectives on the subject. While no one can be prepared for every eventuality, close evaluation and revision to the course will only result in improvements. The Implementation of the prototype will be fully described in the next chapter.

**ADDIE: Evaluation**

The final phase of the ADDIE model is Evaluation. As mentioned earlier, the design process for designing a course is iterative, much like the design process for interior spaces. This calls for frequent evaluation during the process and often results in re-circling to an earlier phase for change or modification. In education, this is referred to as a formative evaluation and can be applied to individual learners to determine their progress, and it can be applied to the course itself to determine areas for change or improvement as is the case here. Summative evaluation, on the other hand, occurs at the end of the course. For students this may mean a final exam or assignment. For a course the instructor or course designer may utilize a number of methods to determine the effectiveness of the course including self-reflection, reflection with others, reviewing a video or audio recording of the course delivery, questionnaires to students, and/or a combination of the above. The assessment of the prototype will be discussed in chapter five.

**Other Considerations**

In addition to the elements of course design this research must also consider variations to better suit a test of the program rather than a full for-credit version. This demonstration would involve volunteers who would not receive credit for instruction time and participation, therefore adjustments had to be made for the recruitment of participants, the learning environment, presentation, activities, and equipment and other resources that would be required for those
activities. The researcher considered a class of approximately ten to fifteen participants would be a reasonable sample to make the demonstration, and from which to gather data for this first iteration. The learning environment selected for the course demonstration was the conference room of an existing architecture and design firm in Calgary. An environment such as this is a typical setting for professional learning. Some CEU courses are presented by individuals who go to the interested parties while other courses are offered in a larger environment such as conference centres or in seminar format offered through an industry event for which individuals register to participate. Considering the small scale of the prototype demonstration, this venue was appropriate for providing a safe and comfortable learning environment. In terms of time, the ideal course would be designed in a full day session, but asking too much time from volunteers would likely result in fewer, if any, interested parties.

**Results**

The result of this development process became *Evidence-Based Design: Applying Research in Practice*. A course designed by an ID practitioner for ID practitioners in the format required for professional credential maintenance, which incorporates active learning methods that are designed to engage practitioners at a high cognitive level.

Beginning with the information from the IDCEC documents, this course was developed to be presented as an Intermediate and Advanced level course. To help determine this the levels of cognitive domain as described in Bloom’s Taxonomy were grouped and compared along in parallel to the IDCEC course level descriptions. See figure 3-14.
The key message of the course was to convey an understanding of the role of research in ID practice using critical thinking skills. To accomplish this each of the main concepts were first discussed. The design process was to be identified through a group activity at the beginning of the course. Then, the facilitator will ask the participants to provide their understanding of research and correct any misconceptions from the responses. It was assumed that the participants would have a limited understanding of research as it is not currently a major aspect of ID education or practice. Once these definitions are established, the lecture would identify how these concepts
are the keys to an evidence-based design approach through methods of information gathering, analysis, and synthesis specific to ID.

Following a general formula of lecture then activity, a worksheet was created to allow each participant to identify appropriate methods for gathering data in a number of design scenarios. To reinforce concepts of analysis and synthesis the facilitator would follow the lecture portion by filling in learner answers on the presentation screen directly. This would conclude the first half of the course. The second half would follow a short lunch break.

For the remainder of the course the facilitator would ask the learners to identify what they believe are advantages and disadvantages of implementing and evidence-based design approach in practice now that they have a better understanding of key concepts. From this list, the instructor would facilitate and guide discussions. Several topics will also be created should there be a lack of feedback from the learners in the identification portion. The instructor would conclude the discussion at the appropriate time and summarize the key concepts of the class before describing the homework assignment. Each participant will be asked to schedule a time for a one-on-one meeting with the instructor to discuss the results of their assignment and also to de-brief their personal experiences of the course to inform the research.

The figure on the next page illustrates early development of the course design. These ideas and others were further discussed with key informants who influenced the revisions to the course.
Chapter 3: Prototype Design

**PART I: FUNDAMENTALS OF EBD**
- Context - Healthcare Design
  - Designers & Clients
  - Building Types
- Design Process - Programming
- Research - B.O.K.
- Critical Thinking Skills - Define the problem / set goal
  - What do you want to find out?
  - Is the info relevant / reliable?
  - What's important to your client?
* This will guide everything you do from this point forward

**PART II: APPLICATION**
- Data Collection - Brainstorming
  - Planning *Methods
  - Implementation
  - Resources
- Kinds of Data - Literature
  - Drawings
  - Precedent
  - Case Studies
  - Theoretical Approaches

**Building Systems**
- Sustainability
- Human Factors
  - Site Experience / Observation
  - Site Measurements
  - Site Photos
  - Drawings
  - Modelling
  - Interviews
  - Not Occupancy Evaluations

Figure 3-15: Preliminary course development outline.
(continued on next page)
Step Three: Consultant Feedback

Once a prototype of the course was prepared, it was presented to a number of key informants who were asked to provide feedback of the course before it would be demonstrated for testing. The purpose of this method was to support the design decisions made in the creation of the prototype and inform the research of possible revisions and improvements that should be made. Their feedback was gathered in both verbal and written form and covered many perspectives based on the background, specialty, and preferences of each reviewer. The consultant group consisted of a variety of specialists including and course designers, CEU course reviewers, instructors of ID undergraduate and graduate courses, adult education specialists, and experts on evidence-based design. After obtaining appropriate approvals from the University of Calgary Conjoint Faculties Research Ethics Board, the researcher contacted these individuals and provided them with the draft of the course for review before sitting down for a one-on-one interview. The interview questions consisted of first impressions, feedback on content, learning material, learning activities, time management, what learners may want to get out of such a
course, as well as ideas for additional activities. Discussion continued based on their individual comments. Some of the informants came prepared with a comprehensive assessment of the course documents they had reviewed, with suggestions ranging from spelling corrections to possible revisions in the course format, sequence, and/or content matter. Other informants commented on specific elements of the documents based on their interests and expertise, content material, presentation, and delivery methods.

In total, seven specialists informed the development of the course. The group consisted of two course designers from the University of Calgary Teaching and Learning Centre, one CEU Course Reviewer, and four Interior Design educators including one with numerous published articles on evidence-based design. Most interviews were conducted in person while two were done over the phone with those who reside outside of Calgary.

For a copy of the Ethics Approval document and sample communication to participants please refer to Appendix C.

The first interview was held with Kirsten Janes, an interior design practitioner with over ten years of experience in the local design community and an accomplished member of the IDA and IDC. Her experience as a CEU course reviewer was invaluable in the continuing development of the course. During the interview she explained that while the IDCEC does not provide a specific checklist for the review of a submitted course, there are certain aspects a reviewer looks for. The basic level CEU is generally aimed at junior designers while Intermediate level courses are more likely to be taken by more experienced designers who would be willing to give their time if they saw value in the outcome. Such courses go into more depth on a particular subject. In terms of the presentation real-life examples, anecdotes, and examples that cover a range of situations (not just American projects for example) are preferred. Together, these suggestions plus a “take-
away" such as a booklet of course material may help make the course more memorable. Kirsten's experience as a practitioner was also valuable to provide suggestions for the course overall. She suggested that a course such as this should be opened to other design professionals, not just interior designers, especially since the AAA approves many of IDCEC's courses in Alberta. Her suggestions also included ideas for making the most efficient use of time.

The second interview with instructional designer Patrick Kelly of the UofC Teaching and Learning Centre was about an hour in length and took place at the Teaching and Learning Centre. He was the facilitator of the Course Design workshop mentioned earlier in this document. Patrick was approached for his expertise in course design and for his five years of instructional design experience. He did not spend a great deal of time reviewing the material before the interview but together with the researcher key items that he felt required additional attention were identified. His suggestions included providing a clear definition of “evidence-based design”, whether this is done by citing one from a published source or coming up with a definition as a group during the class. He advised that the number of topics may require combining and/or reduced considering the limited time for the course. He was particularly excited to discuss the learning activities planned throughout the course and suggested more detailed lesson planning for each activity. Combining his thoughts on activities and group work in the class, he suggested review of a 360 Degree Case Study to help make connections between theory and practice as this kind of study looks at the whole picture of a case over time.

The third interview with Patti Dyjur, the Instructional Design Coordinator at the TLC was held in her office. With experience in research as she pursues doctoral studies Patti’s experience with instructional design was also valuable in those aspects of this research. Patti reviewed the entire document and noted similarities in an evidence-based approach in interior design to engineering and educational processes as well. She found the overall structure of the course – a series of
learn then apply, learn then apply, etc. in a simple to complex progression to be a good approach. It was noted that starting and ending with a simple activity, described as a “hug-in, hung-out” approach, helps to make the learners feel safe and connected. She also mentioned there appeared to be too much content attempted in too short a time. She made suggestions to rewording the learning outcomes, including case studies, and demonstrating examples before asking learners to complete a task on their own.

The next interview with Helen Evans-Warren, chair of the Mount Royal University’s Interior Design department provided insight toward education specifically for designers. With a background in interior design practice, as a design educator, and as someone with research experience Helen’s feedback captured suggestions from several perspectives. One of the main issues was the use of academic tone and jargon, which she suggested should be avoided. She further suggested better use of the instructor’s role as a practitioner first and foremost, not a trained instructor. Clarity and focus on basic issues required tightening up in order to move forward with other topics. She suggested a refinement of the pre-requisite would help bring the group to a common level from which to use as a platform for more advanced topic discussions. The original course design included a follow-up interview with each learner individually to review a take-home assignment. To this, Helen suggested a summative group reflection would be more valuable to the learners.

Paula Dozois was the fifth specialist interviewed. Currently an ID instructor at Mount Royal University, her past graduate work was directly related to education so her feedback was directly proportional to this thesis work. The main point taken from this interview was the notion of the studio engagement. Building on this concept the course development continued with a focus on a one-on-one, instructor-learner engagement. The general idea of a homework assignment with a follow up tutorial was supported by this feedback; however, Paula suggested reconsidering a
take-home assignment to avoid problems with participant’s returning to complete the course. Her comments also focused on making sure topic ideas are tied back into a larger context in order to help learners get the most value out of each part of the course. Comments similar to others’ regarding the use of an academic tone were discussed, but more than that, her advice was to avoid setting the learners up for failure by more clearly defining what is expected of them, especially in the activities. Specific examples and case studies would be a good way to achieve this, she said.

The sixth interview was conducted with Caren Martin. Caren is a published author of numerous articles on evidence-based design and currently teaches a full semester course on the subject at the University of Minnesota. She also has a great deal of experience compiling and delivering CEU’s, one she has done is specifically on evidence-based design. As the other reviewers noted, Caren commented on too much content without sufficient time to deliver it. To help deal with this, she suggested to spend less time in the introductory section, and to also be prepared for participants who may monopolize discussion time. Like Kirsten Janes, she too suggested opening up the course to all design professionals who want to learn. Caren also pointed out instances where the course content assumes the learners are unaware of skills and topics they are most likely aware of after all. Undermining learners should be avoided. The attempt at offering deep learning is not possible in a CEU so changes to the course content should be made accordingly to fewer, key topics. Professor Martin, like other reviewers, also commented on the use of academic jargon, even with the term “case studies”, although the idea of using a personal project for each learner is a good idea.

The final interview was with Lynn Chalmers. Lynn is an experienced ID instructor at the University of Manitoba with an education, practice, and teaching background in Australia and Canada. The interview with Lynn introduced concepts about a culture of research within the profession of
interior design. She said we can’t turn practitioners into researchers but we can begin to infuse research practices into design practice by: building an understanding for and appreciation of research, by providing direction on where to find published resources, and by discerning what is reliable data especially when found through secondary research methods. We can make practitioners aware of the resources available to them including the people who publish on design research. Among her suggestions were Dak Kopec, Lynda Naussabaum, and Christopher Budd. Lynn made a distinction between the research activities a designer might engage in as part of the design work, versus using the projects as resources for advancing research. Furthermore on the topic of ownership, she asked who would be commissioning the research when design projects are often for private clients who may not wish their information to be disclosed? She did agree that an evidence-based design process would be beneficial to the client who can be better educated and aware of the design issues in order to make decisions as well as perceive the designers as credible. Echoing the comments of the other informants regarding length of the course and number of topics, Lynn suggested a two-stage course where the first part would focus on the introductory material while the second part would further explore the application of the material learned. On language, only small modifications were suggested such as re-phrasing “research” to “design inquiry” which would still introduce an academic tone without discouraging the learners.

**Review of Feedback**

Each interview was recorded in notes taken during the conversation. Hand-written notes were typed on the computer to create an electronic file. Once printed, the analysis process was to review each interview document and identify themes and categories. Once these were identified it was clear that some categories were consistent in the comments from all the informants. Comments that were found to be repetitive had greater influence on changes made to the course.
Confirmation of course topics, selection of delivery methods, and relevancy of the course itself were provided to some extent in this first evaluation cycle. All of the informants were enthusiastic of the basic intentions of the prototype. Their feedback encouraged improvements to an already strong preliminary course. To those reviewers with knowledge of the ID profession, this course met the requirements for an intermediate level CEU and addresses an important issue in current industry discourse. Those reviewers less familiar with ID specifically were able to comment on the appropriateness of a highly visual course with multiple activities and opportunities for participation.

General comments were identified then specific changes were made based on a combination of analysis and judgement on the part of the researcher. Among the general comments, ideas on course length, explanation of assignments and exercises, and language or tone were common from most of the informants. All of the informants commented on the presence of too much content in a course that did not allow enough time to cover that content. Too many topics and sub-topics were introduced without the ability to delve deeper into any. The researcher was warned to avoid the set up the learners for failure. Provide them with the information, and then test their knowledge through an exercise. Their warning was to not use the exercise to evaluate. Nearly all the informants commented on the use of academic tone or jargon; however the specific examples cited were sometimes contradictory. Some comments which seemed contradictory among the informants were considered in terms of the specific context of the demonstration (location, learner group, willingness of volunteers) and revisions were made accordingly.

Other comments were informative, but more difficult to implement directly into the course. Feedback on topics of instruction style and connecting with learners through language and attitude required more considerable thought. Most of the informants were put-off by the academic tone and indicated their expectation that practitioners would not be open to this. However, Lynn
Chalmers identified with the concept of introducing new language to learners as long as the terminology was carefully chosen and explained would be appropriate. Some of the comments, either directly or indirectly, suggested instructors must have confidence as a practitioner, as an instructor, and as a researcher. This comes from experience and cannot be conveyed in literature; it develops from years of practice. Another challenging question was how to differentiate between providing basic information as a means to set up a topic, or explanation of a topic versus risk of patronizing experienced practitioners. Final decisions on these concepts were made through best judgements on the part of the researcher. Despite all the advice provided by the informants, only the researcher fully understands all aspects of the context, content, learner group, and intention of the research objectives. There comes a point where the final decisions must be implemented, then evaluated for success or revision based on feedback in situ. In other words, there is an element of trial-and-error that provides additional feedback.

Other comments were more difficult to incorporate as a change, sometimes due to practicality. In these cases, it was determined that the idea would have to be tested in the field at the researcher’s discretion before a final decision would be made. Ultimately, the researcher made final decisions to course revisions based on judgment and research goals. The results are summarized in figures 3-16 and 3-17 below.
Figure 3-16: Sketch of considered revisions to the prototype.
<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Perspective</th>
<th>Level of Commitment</th>
<th>Learner Audience</th>
<th>Time Spent on Topics</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kirsten Janes</td>
<td>Practitioner/CEU Reviewer</td>
<td>• introductory courses are too basic</td>
<td>• mix with architecture credit requirements</td>
<td>• re-think amount of time spent on each topic, for example in numbers 10% comes to about 10 minutes out of 2 hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• more sr. designers are seeking more in-depth courses</td>
<td>• material relates to other design disciplines</td>
<td>• there will be a point where you just have to try it out and see how the time was spent in order to make appropriate changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• learners want value from the course to give value to their clients</td>
<td>• AAA needs more ID courses</td>
<td>• add more detail in a lesson plan for each activity and have extra activities if there is extra time</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• need to convince principals</td>
<td></td>
<td>• select top 3 discussion topics in more depth</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• see it beyond &quot;soft&quot; values</td>
<td></td>
<td>• consider building topic discussions based on what the class wants (customize)</td>
<td></td>
</tr>
<tr>
<td>Patrick Kelly</td>
<td>Course Designer</td>
<td>• reflective practice</td>
<td>• content looks like a lot!</td>
<td>• for &quot;deep and surface learning&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• follow up will bring out those who are truly interested in learning about this topic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patti Dyjur</td>
<td>Course Designer</td>
<td>• learning inventories can have a quick mention but they are largely discredited</td>
<td>• too much info in 2 hours</td>
<td>• for &quot;deep and surface learning&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• start getting the same information with 8-10 people (saturation)</td>
<td>• demonstration will be a great test of timing</td>
<td>• for demographics showing &quot;mostly women&quot; i.e. census or enrollment numbers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• consider a series of courses</td>
<td>• &quot;evidence-based design&quot; and give examples</td>
<td></td>
</tr>
<tr>
<td>Hellen Evans Warren</td>
<td>Instructor/Practitioner</td>
<td>• will be motivated if serious about the course</td>
<td>• there's too much information to unpack in 2 hours</td>
<td>• &quot;body of knowledge&quot; - Denise Geurin</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• expand on studio pedagogy</td>
<td>• for &quot;deep and surface learning&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• material relates to other design disciplines</td>
<td>• for demographics showing &quot;mostly women&quot; i.e. census or enrollment numbers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• AAA needs more ID courses</td>
<td>• &quot;evidence-based design&quot; and give examples</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• not everyone needs to participate</td>
<td>• &quot;evidence-based design&quot; and give examples</td>
<td></td>
</tr>
<tr>
<td>Paula Dozois</td>
<td>Studio Instructor/Practitioner</td>
<td>• will have their attention if they paid to take the course</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• for &quot;deep and surface learning&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• for demographics showing &quot;mostly women&quot; i.e. census or enrollment numbers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• for &quot;evidence-based design&quot; and give examples</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• &quot;body of knowledge&quot; - Denise Geurin</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Centre for Health Design has a good definition of EBD</td>
<td></td>
</tr>
<tr>
<td>Caren Martin</td>
<td>Professor/EBD Expert</td>
<td>• don't underestimate the learners; most will think they already have critical thinking skills</td>
<td>• select most important topics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• there is no time for deep learning in a CEU</td>
<td>• Centre for Health Design has a good definition of EBD</td>
<td></td>
</tr>
<tr>
<td>Lynn Chalmers</td>
<td>Professor</td>
<td>• practitioner's have a lot of knowledge so draw on it</td>
<td>• consider a 2-stage course: methodologies and application</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• don't be anti-research; don't sell yourself short</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviewee</td>
<td>Perspective</td>
<td>Key Ideas</td>
<td>Course Material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kirsten Janes</td>
<td>Practitioner CEU Reviewer</td>
<td>• presenter’s style keeps engagement</td>
<td>Presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• end with key points; make them stick</td>
<td>Activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• simple presentation was easy to read</td>
<td>Out of Class work</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• consider simple graphics if appropriate</td>
<td>Case Studies &amp; Examples</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• intermediate and advanced levels want a “take-away” to continue learning</td>
<td>Language / Jargon / Tone</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• include opposing arguments, note everything is happy and positive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• include instructor’s notes for the reviewer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patrick Kelly</td>
<td>Course Designer</td>
<td>• activity #1, “creating the design process” helps learners connect to the</td>
<td>• try to include a break after an introduction to allow those who haven’t done the pre-readings to do so while having other activities with those who did; then return for lecture and activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>material because it’s very familiar</td>
<td>• lecture first, then ask the question “who has done research?” to reflect</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• activity #1 is good to identify what we already know: KWL</td>
<td>• more anecdotes = better course</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• activity #2 sounds really fun and different; it’s something that would stick because it stands out</td>
<td>• want a “take-away” like notes to keep engagement after</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patti Dyjur</td>
<td>Course Designer</td>
<td>• evaluate a couple of times</td>
<td>• pre-readings before coming to class; or provide class time to catch up on readings while doing a different activity with those who already have</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• demo of the demo</td>
<td>• want a “take-away” like notes to keep engagement after</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• agree with simple to complex approach</td>
<td>• provide examples with actual numbers and photos; real</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• reconsider wording of Learning Outcomes</td>
<td>• consider local (at least Canadian) examples</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• like the info-apply; info-apply structure</td>
<td>• make the key points stick</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• hug-in, hug out - with something safe and familiar</td>
<td>• key examples/stories/anecdotes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• activity #1 gets them thinking and doing right away</td>
<td>• the better the course, the more anecdotes from participants</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• consider possible ESL obstacles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• lots of participation gives various levels of “take-aways”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• will bring back those who are truly interested</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• consider online component</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ask students what they want more information on; what items to go deeper into</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• add case studies, or one over-arching case study (360°), that give students the big picture (beginning to end) to help reinforce topics; use as a spine for the whole course</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• seeing EBD in other disciplines too; seeing similar overlaps in processes i.e. ADDIES in engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• include concept of tacit knowledge</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3-17: Summary of Key Informant Comments B
<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Perspective</th>
<th>Presentation</th>
<th>Activities</th>
<th>Out of Class work</th>
<th>Case Studies &amp; Examples</th>
<th>Language / Jargon / Tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hellen Evans War</td>
<td>Instructor Practitioner</td>
<td>• get rid of the agenda along the side, it's distracting and too academic</td>
<td>• focus less on the how-to and more on the understanding and how to apply</td>
<td>• consider online component</td>
<td></td>
<td>• re-consider wording of &quot;homework assignment&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• pre-assessment will be important to do before class begins to know who is in the class</td>
<td>• activity #1 is too basic; don’t waste time on the fundamentals, they are here for something new</td>
<td>• learners will be motivated if they are serious about the course</td>
<td></td>
<td>• be very direct and clear, use “qualitative” and “quantitative” not just &quot;research&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• refine and tighten the basics; focus on the new stuff</td>
<td>• for part 3: discussions, consider assigning one topic per group to discuss, then share with the class after in a presentation</td>
<td>• may be more beneficical to reflect as a group rather than individually</td>
<td></td>
<td>• separate instructor’s objectives from learner’s objectives</td>
</tr>
<tr>
<td>Paula Dzoos</td>
<td>Instructor Practitioner</td>
<td>• one-on-one domain IS the studio engagement</td>
<td>• group work offers one-on-one engagement and gives confidence</td>
<td>• provide closure at the end of the course</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• set theoretical premise for each topic</td>
<td>• tie each one back to EBD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• don’t blind-side the students by suprising them after the fact; give them information up front then test for understanding</td>
<td>• learners need to see the value in every step</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• situate the learners before we start</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• reconsider wording of the course Title</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• include a course description</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caren Martin</td>
<td>Professor EBD Expert</td>
<td>• measurable outcomes</td>
<td>• hands-on application is generally a good idea but a take-home might deter</td>
<td>• give lots of examples and case studies</td>
<td></td>
<td>• give them a chance to get used to the new terminology in situ, hear my using it, then they will have the tools to provide rich discussion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• open this up to anyone who wants to learn</td>
<td>• this assignment seems too invoked for only one hour of work</td>
<td>• use vocabulary in examples</td>
<td></td>
<td>• do talk about “programming”</td>
</tr>
<tr>
<td>Lynn Chalmers</td>
<td>Professor</td>
<td>• anticipate success: better educated clients; global tune; tools to decision-makers; professional credibility</td>
<td>• provide a tighter framework, not just &quot;real or imagined&quot;</td>
<td>• provide a take-home assignment</td>
<td></td>
<td>• re-think working of headings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• practitioners have a lot of knowledge so draw on it</td>
<td></td>
<td>• this assignment seems too involved for only one hour of work</td>
<td></td>
<td>• thesis language vs course language</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• don’t be anti-research; don’t sell yourself short</td>
<td></td>
<td>• provide a take-home assignment</td>
<td></td>
<td>• avoid academic tone; connect as a practitioner, not educator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• take home assignment is a good idea</td>
<td></td>
<td>• provide a take-home assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• can the follow-up be online?</td>
<td></td>
<td>• provide a take-home assignment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• make learners aware of seminal researchers</td>
<td></td>
<td>• can use “inquiry” instead of “research”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• acknowledge a north american perspective</td>
<td></td>
<td>• there will be special language, just explain it</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ethics is not mentioned at all, why?</td>
<td></td>
<td>• ethics is not mentioned at all, why?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3-17: Summary of Key Informant Comments C
Step Four: Prototype v 2.0

The consultants’ remarks were based on a history of knowledge as well as professional experience. Rather than relying on conjecture it is the personal opinions that the specialists have developed over years of practice within the design community that provided meaningful and appropriate insight on these items. The consultants commented on the many aspects of the prototype design. The comments included: content topics, the time allocated to each topic, the flow and organization of the topics and activities, the level of commitment required by learners, and other un-measurable qualities in presentation skills were of particular aid. The changes made to the course reflect the topics of: length of the course, individual pre-course work, and number of activities.

Multi-session Course vs. One Extended Session

The prototype was originally designed to be presented in two parts. The first part was the class session with lecture and group discussion. Then participants would have time to process what they have heard and discussed and to complete an assignment in their own time. A follow-up interview with the facilitator would then be scheduled within one week to serve as a tutorial/feedback session. Some of the informants suggested that there was too much content and to consider a multi-session course, possibly a series of courses, while other informants suggested to take full advantage of the entire group present at one time rather than relying on them to return a second time with the possibility of losing some of the participants due to scheduling problems. This contradictory feedback made it difficult to make a final decision but in the end, the course was modified to allow time for the assignment in-class for two reasons: since this demonstration was on a volunteer basis it was determined that no additional time on the part of the volunteer would be requested; the opportunity for group discussion upon completion of the assignment was considered more valuable than an individual summary.
Background Reading

Learners have varying types and breadth of design experience. Since the course is designed to be more than an introductory level course some prerequisite information would be required to gain the most value from the learning experience. The problem that often arises is this while some students may complete the required reading, not all do. This results in an imbalance of learners ready for the course material to come. Since the researcher did not go to the extent of compiling a course pack with reading material, learners were asked to do a small amount of background reading. They were asked to find one piece of information on evidence-based design, be it a definition, a previous project experience, or an excerpt from an article. This small amount of background reading was used as an ice-breaker at the beginning of the course and to get the learners used to speaking in front of the group. Moreover, asking the participants to do some background reading helped to introduce them to the topic at hand.

Reduce the Length of the Course

The researcher had to find a balance between maintaining the integrity of the course and satisfying the needs of a volunteer group. Should the course be offered officially to design practitioners who may earn credit for work done, this course could demand more time from the practitioners. However, considering the difficulty experienced in recruiting volunteers (explained in the next section) it was determined that a shorter class time was required. This limitation actually aided the design of the course to suit the allotted time, rather than attempting to predict how much time might be required to suit the content.

Intermediate vs. Advanced Level Course Content

Based on experience as practitioners themselves, the feedback of the consultants stated that it is most likely that intermediate and senior level practitioners would be more interested in an extended learning experience and have the capability to implement their knowledge, while junior
designers would more likely be attracted to introductory material offered in shorter lessons. In general, it was clear that an Advanced Level course requires more time for a deeper understanding of the course topics. Since time considerations were a priority in this demonstration, deep learning was not possible. Another barrier to a deep learning approach is that the learner audience would not have to pre-requisite prior knowledge of evidence-based design or research methods.

Feedback that was not introduced into the revised course design was in regard to the presentation to a larger design audience, and use of academic language. For the purposes of this study, the course was presented only to Interior Design practitioners to provide specific feedback on a research-based design approach in their work. While evidence-based design is not intended for exclusive use by interior designers, and is in fact useful to other design professionals as well, the boundaries set for this research were respected in order to communicate clear methods and results. Future development of such a course may indeed include an expanded audience with corresponding examples and case studies. With respect to terminology, the researcher was surprised to hear numerous comments against the use of words such as “research”, “methodology”, or “synthesis” referring to these as academic jargon. It is this researcher’s opinion that the introduction of new terminology is essential to the study of evidence-based design and that interior designers would be open to new ideas, rather than find them overly challenging. The course would maintain these terms and offer definitions and context to aid in comprehension, as well as encourage class participants to use this terminology in their discussion.

**Preparing for Testing**

After the above revisions were incorporated into the prototype it was demonstrated to a group of design specialists to determine the perceived value, acceptability, and relevancy of evidence-based design in the local interior design community.
The following pages identify the course description and course outline prepared for the prototype.

For the complete document of Prototype V 2.0 please refer to Appendix B.

---

**Course Description**

Current issues in interior design include topics related to education, professionalism, and design thinking. Evidence-Based Design (EBD) is a concept that combines these important issues with far-reaching implications. It is about making design decisions grounded in a body of evidence. It provides a way to articulate and defend design decisions with purpose and meaning. It gives designers additional tools for communicating their ideas to clients, and to arm their clients with explicit information to take back to their stakeholders. It makes designers reflect on their own work and raises the bar for design excellence and innovation.

Evidence-based design is not a new idea. Many practitioners working in healthcare, educational and corporate office design may already be familiar with this concept. EBD can be described as an additional layer of design thinking, working in parallel to the existing design process to produce high-quality designs based on an understanding of existing designs and the needs of the project at hand within the realm of a larger context.

This course is intended for Interior Design Professionals seeking a continuing education course rooted in exploring design concepts. This is an Intermediate level course as defined by the IDCEC.
Throughout this course, participants will learn about researching skills, methods for data gathering, and analysis and synthesis of data. After taking this course, intermediate and senior practitioners will be able to develop a language more rooted in research practice to communicate effectively not only with colleagues and clients, but also mentor new graduates entering the industry with unique skills and knowledge. Designers will be able to add evidence-based design to their scope of services benefitting clients, and understand how they can contribute to the greater body of interior design knowledge.

Participatory learning methods such as group discussions will be utilized parallel to lecture which introduces designers to Evidence-Based Design concepts. A studio exercise is included to reinforce learning through direct application. Learners will be evaluated based on the demonstration of their understanding of course content through participation of discussion and presentation of their studio work.

Course Outline

**Instructor:** Cynthia Nemeth BAID, LEED-AP  
**Hours:** 3 hours  
**Pre-Requisites:** Intermediate  
**Materials:** Will be provided in class.  
**Readings:** A list of reference material will be provided.  
**Evaluation:**  
Presentation of self-study assignment – 50%  
Participation in group discussions – 50%  
**Topics:**  
Part I: Comprehension  
Context  
What does evidence-based design mean? Class participants will be asked to come to class prepared
with a piece of information they have found on their own on evidence-based design. Group discussions early in the class will set the tone for a safe, familiar, and comfortable environment for participation and interaction. An overview of EBD in a historical, practical, and learning context will introduce the class to the basic concepts and lay the foundation for more complex discussion. Learners will develop a working definition of EBD throughout the course.

Critical Thinking
Participants will learn the critical thinking process, when and how to work with it, and how it contributes to Interior Design practice. Participants will engage in a class activity to reinforce learning.

Research
Learners will learn the difference between “research” and “information gathering”. They will learn and use academic language such as “methodology”, “analysis”, and “synthesis”. Participants will gain an understanding that their training and practical experience already follows some of the elements of EBD practices.

Part II: Application
Data into Process
In an individual studio exercise, class participants will brainstorm and identify practical methods for presenting analysis and synthesis of data gathered in an EBD approach. Learners will work with a case
study of their past professional experience and revisit the design process to identify at which point(s) evidence-based design practices were applied and can be built upon.

Part III: Critique

Discussions

Working off the advantages and disadvantages the class have identified, the instructor will facilitate a series of discussions on the issues related to EBD that have not been clearly resolved. Some examples may include costs of additional services, roles and responsibilities, and time and scheduling barriers. Overarching issues of design complexity, intellectual property, and perceptions of value may also come into focus. The class participants will also have the opportunity to identify and discuss other topics they find important to design practice.
chapter 4

DEMONSTRATION

Research has become an important component throughout the design process. It provides evidence for better design solutions. by Linda L. Nussbaumer (2009:xix)

Methods

Once the revisions required for the initial course design concept were identified, a Version 2.0 was prepared for demonstration. The revised course was then delivered to a small group of interior design practitioners to determine its perceived value, acceptability, and relevancy of evidence-based design. Participant feedback was recorded through observation during the course demonstration as well as written evaluation questionnaires filled out by each participant.

**Limitations and Bias**

The project is limited to a small number of volunteers from the Calgary interior design community but future demonstrations of the course may reveal various perceptions and identify areas for improvement from a regional perspective. This community is relatively small and it would be likely that some of the participants would know each other from past professional encounters. The researcher was aware of this possibility and endeavoured to plan learning activities that would engage learners at an individual level while keeping the content and examples as generic as possible.

**Participant Recruitment**

Three attempts to recruit practitioners to volunteer for the workshop were made. The main thrust was through the help of the Interior Designers of Alberta (IDA). They were contacted by the researcher and agreed that since there was no intention of advertisement or sale of a product, they would be happy to consider a posting for educational purposes in their regular member newsletter. The IDA published the notice one month before the scheduled workshop. The notice described the nature of the research and asked interested parties to contact the researcher for more detailed information. The result of this process proved unsuccessful as only two designers responded.

A contingency plan was developed and used in an attempt to recruit additional participants. A list of IDA members and their contact information is publically available on the IDA web site. Those practitioners listed who met the defined requirements were contacted via email. The defined requirements were: located in Calgary, and a Registered Member of the IDA. The email to each of the 20+ individuals was designed to spark interest in the workshop. If the individual responded, more detailed information was sent that would help them make a final decision to participate. The result of this process was slightly more positive as several designers expressed interest, but
many were unable to commit to the date proposed. Those designers who did not reply to the email were contacted via phone. Of this group, no additional individuals were successfully recruited. By this time the scheduled workshop date was only days away and producing a new recruitment strategy was not feasible.

Overall, the first workshop attempt failed to attract a reasonable number of participants. It was hoped that ten to twelve individuals would make up the class but with only two volunteers, it was decided to post-pone the event until after the summer months when the recruitment process could be renewed. This would allow time determine and apply a new recruitment approach and increase the likelihood of participant availability.

In the second round of recruitment, the target audience was expanded to include not only Registered IDA members, but any ID practitioner with a minimum of three years experience who would be interested in learning about evidence-based design and interested in providing feedback on the research. Those designers who previously expressed interest in the spring were contacted first. Approximately fifteen designers were contacted through personalized emails reiterating the project intent and suggesting a new date. A new recruiting approach was also included; the Mount Royal University Interior Design Alumni Association was approached. With permission, the research intent was presented at one of the monthly Chapter meetings to those in attendance. Several individuals expressed verbal interest but no one was prepared to sign up that evening. Instead, the Secretary agreed to forward an email with all the information about the research project. The results of these processes were: none of the designers who previously responded with interest to participate agreed to partake in the demonstration, and only one of the Alumni Chapter members signed up.
Please refer to Appendix E for recruitment documents as approved by the Conjoint Faculties Research Ethics Board.

Ultimately, the researcher tapped into her own professional network and called upon colleagues that were willing to participate in the research. A total of eight practitioners, each with ten or more years of experience in the ID industry, agreed to participate. Two participants brought over twenty years experience and one participant over thirty years. The participants have experience in the fields of residential, academic, corporate design, as well as various other building types. The majority of the participants were female with only one male participant. This is representative of the typically female-dominated profession of ID.

Course Demonstration

The demonstration took place on Saturday, November 26th, 2012. The setting was chosen was an Architecture and Design firm in Calgary. The setting was chosen for its size, location, audiovisual resources, and general familiarity of and office environment. The corporate boardroom of a studio-based firm is the typical working environment for ID practitioners. The demonstration took place between the hours of 10:00am and 1:00 with a lunch break mid-way through.

The room was prepared ahead of time. The tables and chairs in a conference style grouping and a portfolio at each place setting. The portfolios consisted of all the handouts, a condensed course outline for note-taking, a pad of paper and pen for any additional note-taking, as well as the required consent forms.
After the first few introductory slides the participants were asked to introduce themselves and talk about the piece of evidence-based design they found before coming to the course, (alternatively tell us what they hoped to learn in this class). Introductions were followed by the first activity which was designed to review the Design Process to make sure all participants agreed on the general process and tasks used in all design projects.

The lecture began and proceeded to provide the bulk of the course content. The facilitator proceeded through the presentation slides which accompanied the lecture on how evidence-based design emerged, the use of evidence-based design in the ID industry, and that it is synergistic with researching skills and critical thinking skills. Throughout the lecture, learners were asked if they had experience with the sub-topic just introduced. This was a way to check in with the group and let them speak throughout the course and this approach worked very well as it stimulated discussions. In fact, allowing the group to discuss the topic is what was planned for later in the lesson. It naturally occurred earlier. All learners were encouraged to participate in the discussions, offering a different perspective.

Returning to the posted Design Process identified earlier, the intention of the next activity was to identify evidence-based design research practices occurring mainly in the front half of the process and to express this visually. The participants were able to identify that the location of evidence-based design tasks would indeed occur in the front half phases. What was interesting was that one participant thought that evidence-based design tasks would more likely occur in the latter half of the process. This was based on his experience as a Construction Administrator on a large and recent project. This meant that his experience was not in the design of the space, but he came in at a later stage and required information to “catch up” or understand that history. In his interpretation, this required information- or evidence-gathering. Another participant pointed out the critical Thinking would occur at every stage, and the resulting discussion confirmed others
agreed with this statement. The discussions flowed nicely from topic to topic and the group made connections easily and this indicated understanding of the intention of the activity.

At this time a lunch break was scheduled, however delivery of the food was delayed. The facilitator took this opportunity to acknowledge the change in agenda then adapt. The next section was introduced and the group was taken through the process of identifying the advantages and possible disadvantages of implementing an evidence-based design approach. This proved to be a nice set-up for the activity that would take place after the break.

The final section of the course was designed to be a studio-like activity as often utilized in most design schools. It involves class participants to stop listening to a lecture and begin to work through a practical exercise. In the pre-course documents, each participant was asked to think of an actual design project they are currently, or had recently worked on. They were welcome to bring in any material they thought would be appropriate to work on in a class environment. Most simply described a project situation from memory and proceeded to de-construct its parts using the design process and re-construct it with an evidence-based design approach in mind. The goal of the exercise was to allow each learner to see and understand the differences that would occur when applying the information discussed in the lecture. Included in the explanation of the assignment was the idea that the participants could work individually, or in pairs, or groups. This is exactly what had happened: one person chose to work individually; there were two teams of two, and one group of three. The facilitator first visited the participant working individually, then the pairs and then the group of three. As the learners work, the facilitator made herself available to answer questions or promote explorative discussions. Each of the learning groups received one-on-one attention. Good group dynamics were observed and a high level of engagement with the course topics. One group took the opportunity to ask the facilitator a question to clarify and element of the course content, and other group members listened to the exchange. Clearly,
discussion was the most prominent method for learning and communication among the learning group. Figure 4-1 is an example of what the learner’s produced as part of the exercise.

The facilitator gained the attention of the group to indicate the class time was coming to a close. Once they finished up their discussions a brief summary was provided of the course topics with a final word to encourage each practitioner take what they have learned and look for ways to apply it in their current practice. Course evaluations were completed and the participants began to leave.

**Review of Participant Feedback**

Of the eight individuals who participated in the demonstration, seven returned completed questionnaires. One participant did not return the questionnaire and did not respond to two attempts at contact. Since this individual participated enthusiastically in the workshop and gave no indication that she wished to withdraw from the study her lack in communication is likely not related to any objection to the research study. Therefore, this participant’s contribution in the workshop discussion is included as it influenced further discussion by others however her written responses are excluded from the results.
IDEA ROOM

PROBLEM:
Go to the Design to address a new style and method of teaching.

PD:
- Client brought guest research from other institutions.
- Went to furniture provider for their feedback.

DD:
- Implemented design, furniture, tech.

SD:
- Programming:
  - Went to RDC
  - Pre-plan models
  - Feedback/interviews students
  - Research technology

CD:
- Technology hearing room limitations
- Building limitations

CA:
- Ramp issue
- New floor technology

PD:
- Instructor feedback

Figure 4-1: Learner's response to class activity.
Questionnaires were designed with a mixture of open-ended and closed-ended questions. That is, respondents were given the choice to answer with a check-box with a positive, negative, and neutral option, as well as a comments section to which respondents were free to express thoughts and opinions in their own words. Two questions in the Overall Impressions section were open-ended only because the nature of the questions did not call for a polar response. These questions were "What was the most interesting aspect(s) of the course?" and "Which aspects of the course could use improvement?" One other question found in the Course Delivery section was left open-ended for the same reason: a polar response was not appropriate when asking, "Other than those provided, what other resources would you prefer to have to improve your learning?"

Once the questionnaires were collected the responses were recorded in a spreadsheet format. This method was used in order to quickly review responses side-by-side in one location. The Yes/No responses were recorded in one spreadsheet, while the comments were paraphrased and recorded in a second document. Where no written response was provided, the researcher left the cell blank. This helped to identify those questions which the check box answer was preferred over a written comment. Responses were counted, and compared. Counting the number of same responses in each question highlighted those questions which seemed to produce agreement among the group. Inputting the data into a chart format allowed the researcher to quickly and easily identify gaps - questions to which no response was given. This brought the attention of the researcher and subsequent critique as to the possible cause of the gap.

The results strongly indicate that ID practitioners are interested in learning more about evidence-based design because they find the topic relevant and important to their design work.
The most conspicuous responses are indicated by the majority of the participants with six or more responses. These included those questions related mainly to those regarding relevancy of the evidence-based design topic itself. Seven respondents indicated that evidence-based design is relevant in interior design practice with supportive comments such as “most definitely”, and “I think it is critical.” This was the most definitive response and yet the written comments were quite scarce, with participants indicating their comments to previous questions more specifically sum up their thoughts. It is possible that respondents simply ran out of steam with this final question, however, asking this question earlier in the document may have seemed too daunting to respondents.

The next most intense responses were for an answer of “maybe” when asked if they thought clients would be willing to pay for additional (research) services such as costs associated with evidence-based design. Supportive comments referred to group discussions during the course and some participants reiterated comments which suggest that specific project situations and client awareness (sometimes requiring “extra convincing”) would need to take place in order to answer “yes.”

Several questions received six responses the same. Again, most of these responses were found in the section of questions related to relevance. Six participants answered “yes” to wanting to learn more about evidence-based design; that they thought implementing an evidence-based design approach was both necessary and practical; and that in their opinion the local design community would likely be accepting of evidence-based design as part of practice. Six “yes” answers to the question regarding the introduction to the topic are also noted. Interestingly, participant numbers #6 and #7 presented answers that took greater advantage of the “maybe” or “somewhat” choices. However, their comments seemed more thorough and complete.
There were very few questions left unanswered. Five questions were not answered with a check in the yes/no/maybe boxes. However, these questions were answered with written comments instead. Four of these questions were from the section on Relevancy while one was found in the Course Delivery section of questions. Two participants (#5 and #6) did not check boxes to the question “Would an evidence-based design approach be relevant in all design situations, or only specific design problems?”

Conversely, two participants (#4 and #5) selected more than one check box, each on one occasion. This indicates a preferred response not offered by the questionnaire which is an example of good use of the comments section for each question. The questions in which this phenomenon occurred were “Would you recommend this course be submitted to the IDCEC and offered to Interior Design professionals for credit?” located in the Overall Impressions section and “Would an evidence-based design approach be relevant in all design situations, or only specific design problems?” found in the Relevancy section of the questionnaire. The comments supporting these selections indicate not confusion, but rather contemplation on how the issue could be successful. This is an indication of the problem-solving way of thinking many designers possess, displaying the need or desire to go beyond the initial question and offer solutions to a puzzle.

The question “Would an evidence-based design approach be relevant in all design situations, or only specific design problems?” found in the Relevancy section of the questionnaire seemed to pose difficulties for some of the participants. This indicates that the questions is too “loaded” and not easily answered with a simple yes or no response, nor a short written answer. It clearly requires deeper discussion to more fully explain an opinion. If the respondents wanted to provide a full and rich response, they were limited by the format of a questionnaire.
Providing the participants with two opportunities for response, yes/no check boxes and written comments proved to be effective. It allowed all participants a chance to respond to most questions in a way they felt most comfortable. As indicated, there were some instances where only one or the other option was exercised. However, in most cases, the participants utilized both options for response.

When asked, "Were the demonstrations helpful in learning the course material?" all but one participant communicated a sense of uncertainly as to what was demonstrated, or stated outright there were none. There were limited demonstrations built into the course, namely showing the learners how to find and navigate the InformeDesign website, and an example of how a project de-construction and re-construction may look like in the preliminary stages. These demonstrations were short and done quickly and may not be considered as "demonstration" by the participants.

It is important to consider that since the majority of the participants knew the researcher personally, through either previous work or educational encounters, participants may have been more willing to offer their time and complete responses to the questions. While their efforts are very much appreciated, it is likely that under similar conditions these professionals would have offered the same high regard to their responses to a different facilitator. These individuals showed up that day not because they were simply doing a favour, but because they carry a genuine interest in professional development and learning within their industry practice.

Another limit to consider is time management. The course was alive with enthusiastic participation and in the end, we ran out of time. Only five minutes were left to summarize the course and fill out the questionnaires. While all participants willingly stayed later to fill out their questionnaires, some had to leave to attend to other commitments, or otherwise hurried to
provide some feedback rather than none at all. These individuals handed in questionnaires with short answers, refraining from deep, rich commentary. Although somewhat disappointing, all responses were helpful in determining conclusions to the research. Three participants chose the option to complete their questionnaires and return them to the researcher at a later time but the majority of participants stayed and took their time to provide more complete comments.

Please refer to Appendix D for a summary of participant feedback.
ASSESSMENT OF DEMONSTRATION

To meet the challenges we face, these disciplines need a better foundation upon which to build, which will require the development of a scientific understanding of how the built environment affects us.

Shashi Caan (2011:9)

Reflection

This research inquiry utilized multiple research methods in an attempt to explore the issues of learning, research in ID practice, and the potential implications to the profession of interior design. The issues are complex, and as an exploratory research piece, this project coordinated several research activities. Multiple methods of gathering data were appropriate for this research as there was no single source that would provide a comprehensive collection of required information. The research was informed by a review of the current literature, by a practical exercise which made use of the researcher’s professional knowledge, and active experience learned through group

workshops which provided the foundational understanding of the research. Feedback from a
variety of professionals in related disciplines, and feedback from the experiences of design
practitioners further informed the creation of the course prototype.

Where the results of the inquiry were dependent on feedback from professionals the information
provided by the informants varied, even contradicted in some cases. Therefore, comments were
gathered from multiple sources which better ensured the work was assessed from various
perspectives.

In the first iteration of the course delivery, the learner group presented a high measure of
participation and camaraderie which contributed to the positive energy of the class. The level of
discussion was high and the participants successfully touched on many of the key topics for
discussion without much prompting from the instructor. The overall success of the course
demonstration can be attributed to the friendly and positive atmosphere. This may not happen
with every group. In this case, most of the participants knew each other from their professional
pasts.

Recruiting volunteers for the course demonstration proved more difficult than expected. In the
end, the group assembled were individuals particularly interested in learning and particularly
supportive of the research endeavor. While not a necessarily accurate sampling of the design
community, the successful participation of this learner group may indicate that the course should
be delivered to groups of colleagues in the same company or firm. Designers who feel
comfortable among their peers may be more likely to contribute a similarly high level of
engagement. However this approach could also limit the quality of discussion since the diversity
of experiences could be lost. It may also be possible that more junior designers may be less open
about their ideas if intimidated by their supervisors participating in the same group, or feel they do not have much to contribute due to their more limited experience.

The intentions of the course were to disseminate information on evidence-based design and the importance of research-based design approaches, to stimulate discussion with a group of interior design practitioners with diverse experiences, and to show participants that application of the lesson immediately following the lecture helps to solidify core concepts. The course demonstration was a success in that all of the practitioners participated in lively discussions and were eager to share personal accounts related to course content. The studio portion certainly requires revision as there was not enough time to complete the activities. Studio engagements really do require more time. Learners first need time to process the information and what they are being asked to do before they start doing it. It was not ideal to have to prematurely end the final learning activity, especially when the participants were fully engaged in it.

There was not sufficient time at the end of the class to allow the learners to share their discussion points from the studio exercise. This was especially disappointing. Sharing information is an important part of research and this point was lost by eliminating the final discussion and opportunity for the learners to showcase their findings. However, most participants willingly stayed more than 30 minutes past the course time to finish the questionnaires and participate in further discussions.

**Discussion**

The outcome of the course demonstration contributed to finding insight to the purpose of the research. The purpose of this research is to demonstrate how professional continuing education can be an effective mechanism to expand the use of evidence-based design. Moreover, the
results of this research revealed additional lessons on topic relevancy within the greater context of the ID profession.

A summary of the course assessment can be seen in figure 5-1. Elements that worked particularly well are identified under the check-mark while elements that require improvement are under the second column.

**Course Demonstration Evaluation**

<table>
<thead>
<tr>
<th>Learners</th>
<th>Content</th>
<th>Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High level of engagement and interest.</td>
<td>• Sharing anecdotes contributed to content.</td>
<td>• Learning through discussion and reflection.</td>
</tr>
<tr>
<td>• Existing learner knowledge should not be underestimated.</td>
<td>• There was insufficient time to cover all the course content.</td>
<td>• Learners min-understood the meaning or research.</td>
</tr>
</tbody>
</table>

Figure 5-1: Summary of Course Demonstration Evaluation.
**Course Content Evaluations**

**Evidence-Based Design and Research**

Most of the participants had not heard the term evidence-based design before learning about this course. However, all participants accepted the basic concept of what it is and had enough of an introduction to engage in relevant discussions throughout the course. When asked what their perceptions of the term research was, as expected many thought they knew precisely what it was. In reality, their response was only partially correct in that it involved background review. They neglected to consider the application of original material to the general body of research. The learners concluded that research is something designers do already, as evidenced by several comments both in the written questionnaire and in group discussion. This suggests not only the need to correct common misconceptions, but that using (and explaining the definitions of) academic language such as “research”, “qualitative”, “quantitative”, “critical thinking”, and other terms are indeed appropriate.

**Post Occupancy Evaluation**

It was not expected that participants would readily identify post-occupancy evaluations (POE) as part of the post-construction phase. This assumption was based on personal practical experience in ID practice where POE is often removed from the design process for various reasons. It was expected that the instructor would introduce the idea and inspire rich discussion on the subject. Rich discussion developed without prompting because some of the other the designers’ experiences did include POE’s. This is significant because post-occupancy evaluations represent an important aspect of research in ID where by critical reflection requires the designer to review the perceived success of the project, and to loop back to previous phases of the design process for assessment. Given more time, this would be a topic worth exploring further in class to reinforce its significance in the design process.
During the exercise of identifying tasks within each phase of the design process (activity #1), participant #8 quickly identified POE as a post-construction activity. This opportunity was used to engage in this topic by asking her to elaborate on her experience with it. Participant #3 and later participant #7 actively joined the discussion with their own experiences. This rich discussion provided a new perspective and insight of the local design industry beyond the researcher’s own experience with it. The assumption that interior designers rarely engage in post-occupancy evaluation activities, which ultimately lead to lessons learned reflection, was disproved by the responses. These results proved the original assumption to be incorrect. When participant #6 was called upon to comment on any engagement in post-occupancy evaluation activities since her practice focuses mainly on residential design, rather than commercial design as the others, she expressed that she desired more information on general concepts before committing to applying evidence-based design in practice. This suggested that some participants may require more time to process information before engaging in specific discussion topics. This is synonymous with the original thoughts on the design of the course as a multi-session format that would allow the learners’ time to reflect on, and process information from class.

Time and Budgets
Based on general day to day business practices and client expectations, it was anticipated that a lively discussion around the topics of time and budgets as barriers to implementing an evidence-based design approach would evolve. Additional costs for services were discussed and it was agreed that it would need to be taken into account early in the project, but it was not a point of contention as originally expected. The course participants focused on the understanding of an evidence-based design approach, and they seemed eager to discuss its application in practice without seeing budget issues as a barrier. Nearly all of the participants provided input to the discussion regarding sufficient time and money being requirements in “ideal” situations which would allow for implementation of evidence-based design. Rather than time and money,
moreover the attitudes of the client seemed to be the foremost influence in the discussion. This suggests one of two possible conclusions: these topics are not barriers to implementing a research-based design approach in practice, or that the learners refrained from thinking about these topics in a real-life situation, preferring to use the class as an escape from those realities.

Project Type

Stemming from the discussion on having adequate time and money for a successful evidence-based approach, the participants agreed that not all project types would allow for this type of scope. Project “type” could refer to the type of building (educational, corporate office, residential, etc.) or to more general project circumstances which include factors concerning the client, the budget, and the schedule. It is reasonable to infer that larger projects, or specially funded projects such as hospitals or large office complexes, are more likely to have the budgets in place to support the time and resources spent on a research-intensive design process. Several participants referred to this as an “ideal” project situation. This notion of idealism was an unexpected topic area that arose from group discussion. This information is valuable and representative of the participant group as they are professionals with a library of current experiences. It also represents a positive outlook on the designer’s work, an opportunity to look forward to rather than a hindrance. No one seemed disheartened that “ideal” projects may be few and far between, but celebrated when these project and clients come about.

Client

The notion of idealism extends beyond the project and is directly associated with the client as well. The client’s “personality”, level of understanding of ID work, and project goals were key ideas the learners made repeated reference to. This suggests that design work is not only highly influenced by a client (or a project) but that the outcome is determined by the decision-makers, rather than design “standards” or designer knowledge and know-how. Design practitioners know
that practice is different than theory or conceptual ideas. In this learning situation the participant
group identified the importance of client decision-making as an influence to design practice and
this idea is significant because it supports the suggestion that discerning clients require, and may
ask for, substantiated proof that their investment is sound. An evidence-based design approach
can accomplish this by informing the client on both the process of their design and the supporting
evidence they need to make final decisions.

**Course Delivery**

*Assumptions and outcomes:*

Despite the focus on practical application and relevancy in practice, it seems that this course
offered an environment for conceptual thinking rather than practical application solely. Perhaps it
is not possible to combine conceptual thinking with practical application in one relatively short
session. This may be another reason for re-designing the course to cover multiple-sessions over
several days. It would allow for time to interpret information and formulate ideas conceptually,
then be prepared to apply ideas. This is congruent with the comment received from one
participant who took a break from the class before diving into the practical assignment. His direct
comment was that he would usually take some time to process the information and then return to
the assignment at a later time, but that was not possible in this case. His comment was referring
to his undergraduate/graduate educational experience with assignments that called for several
weeks of work, but his comment is also true in the practical world. Seldom, if ever, does a
designer return from an initial client meeting and produce results within 30 minutes. The design
process takes time, as does an evidence-based design process. Determining the problem and
devising a methodology to produce results is not instantaneous. As such, this course should be
re-designed to allow learners time to process new information.
The research assumed that one-on-one consultation with the instructor would be helpful in understanding course content. One-on-one consultation turned in to one-on-group engagement as all but one of the participants teamed up in pairs or a group of three. This occurred without instruction; the participants naturally teamed up and used discussion as a tool for their learning. The overwhelming success of this small group encounter suggests that the studio engagement is not based on one-on-one contact between instructor and learner, rather experienced practitioners are likely to use communication as a tool for not only learning, but also for working. This is quite common and a charrette is one example of a tool used by designers to brainstorm many ideas and foster creativity and innovation free from specific details or practicalities. Charettes are a good example of a collaborative approach to working, and can be compared to the group work which occurred in this learning scenario. A similar group activity may be an appropriate alternative in some learning scenarios.

This tendency toward group-thinking was an eye-opening learning experience as an instructor. In the Teaching and Learning Centre workshops students learned that instructors are more like facilitators, not lecturers merely spouting facts and instructions. Similarly, adults are (likely to be) active learners, not “blank slates” waiting to absorb facts and instructions. In a professional development course such as this, the target learning audience will be active learners who are genuinely interested in, or already possess some knowledge of, the subject of evidence-based design. Certainly the course will also attract those learners who are only interested in collecting credit hours, or are determined passive learners (those who want merely to be told the facts on the subject and would not likely be interested in extending their learning outside of class time), but the evidence of this workshop experience illustrates the opposite. Future deliveries of this course should focus on reaching and encouraging active learners through focus on class interaction and discussion, possibly utilizing a more formal charrette framework.
Lessons Learned

At the start of the course demonstration, all the participants seemed eager to learn something new. When they were told that the instructor would not be telling them something they didn’t already know, confusion and disappointment seemed to follow. It was explained that most students come to a class with a great deal of knowledge already and in fact, it is often the students learning from each other when engaged in discussions, debates, and anecdotes. Furthermore, it was important to credit the students as professionals who have a great deal to contribute to the forthcoming class from their practical work experiences. The message was also meant to recognize the importance of the artistic/intuitive/experiential side of the spectrum while the class lecture will focus on the opposite: more systematic and scientific methods of inquiry exemplified in evidence-based design. It is unclear if the opening statement left a lasting impression on the learners of if they came to the realization that their expertise is indeed the most influential factor.

Based on the feedback of the learners, it was evident that they did indeed relate most of the information to their current practices. Each participant related anecdotes from past experiences which helped to make connections among the topics. They believed this to the point that they expressed complete understanding of evidence-based design. So much so, that they stated they already employ it in regular practice. Unfortunately, it is unlikely that the participants understood key aspects of evidence-based design so completely because knowledge of research and researching skills requires intense inquiry and time to practice before the concepts can be synthesized into a final format. The course was not designed to provide a total and complete understanding of the subject and it would be nearly impossible to do so in just one session. This may be further evidence that multiple classes are required to better convey the important concepts of gathering and using evidence through research.
While most participants identified that they received an adequate introduction to evidence-based design, they also expressed interest in learning more about it. This suggests more content should be added to the course and, again, in multiple sessions. Furthermore, the high level of discussion demands a considerable amount of time to allow all learners to participate in the dialogue. It was difficult to cut short the excellent and positive activity in order to move on to other topics before they were fully explored, and exacerbated by the knowledge that there would be no opportunity to return to the discussion again. Both ideas of additional content and additional discussion on the sharing of knowledge also support the need for more time.

The demonstration revealed learner preferences in the out-of-class activities which may or may not aid in their learning. Participant feedback consistently indicated the lack of adequate demonstration and the desire to learn from case studies. The intent of asking course participants to bring a familiar project to the class was to work with it as a case study. This concept seemed to be lost on the group as they preferred traditional examples to help in their learning. On the idea of self-directed study before any course introduction, assigning reading outside of class time didn’t work for all participants who either did not find time or were not interested in working additional hours. This may be due to time commitments, learning styles, or a combination of both.

The importance of publishing and sharing research findings was lost in the course content as the class went over in time and this topic was not covered or demonstrated. Additional time at the end of the course is clearly required to allow participants to review, reflect, and share their work with others, and to explain the importance of sharing information with a larger audience. Making research findings available to others in the profession, and to the public, is one of the requirements in educating clients and design colleagues on the value of interior design contributions.
**Future Revisions**

Since evidence-based design is such an enormous topic, a multi session course would be the best way to convey the information as well as to ensure that each sub-topic is fully understood by the learners. One session is simply not adequate to convey all the necessary information or to assess the learners’ understanding. A multi-session program could begin with introductory material, and then more complex issues can be discussed and explored in subsequent classes. Additional ‘studio’ time used for collaboration on projects and assignments would enhance learning and can be worked into a multiple class format. Additional time for the learner to interpret the information over time would also likely improve understanding of course content as well as encourage continuous thinking and application of evidence-based design practices.

The content should include more emphasis on the explanations and definitions of research and critical thinking. A deeper understanding of these topics will enhance learning of their role in ID work. Lecture material should provide more information on each topic and the facilitator should return to these topics often throughout the course. This will help to make connections and reinforce learning.

Case studies should be included in the discussion portions of the course. First, learners can learn about the details used in projects where evidence-based design was utilized. They will then be better prepared with tools and knowledge for applying evidence-based design aspects into their own, more familiar projects. For example, learners could analyze their personal projects in greater detail before “re-constructing” it with greater success. There may even be an opportunity to apply evidence-based design concepts in a current, “real-life” project and to report on particular results as the course progresses over time.
The addition of an online component could serve a number of valuable options for learning. Providing prerequisite information before the class begins could help to create a sense of community among course participants. Providing all course material before class begins is sometimes beneficial to some learners. An online communication format allows the facilitator to post additional reference documents, assign discussion topics, and request course evaluations. This idea has the potential to hold engagement in course material even after the class itself. It may also help to reach students with a greater variety of learning styles such as written communication, independent learning preferences, or access to references as they begin to implement data-gathering methods. An online discussion forum can be created to aid in the continuation of course material for those interested. Some participants may not take part in this, but based on feedback to date, most would likely participate in discussion. Some even commented, in class, they would enjoy an opportunity to keep in touch with classmates who have shown interest in evidence-based design and may have an opportunity to work together in the future.

Conversely, a studio learning environment could be further explored. Shulman (2005) describes signature pedagogies as habits developed by the profession that will help to define its culture. If ID undergraduate education so clearly relies on studio learning, perhaps the learning environment itself should be re-evaluated especially to reinforce the application of newly learned concepts.
Future Course Revisions

| Delivery Format       | • Extend length of course to cover additional content.  
|                       | • Re-format to a multi-session program. |
| Content               | • Focus content to explain research in more detail.  
|                       | • Include case studies and examples by others. |
| Setting               | • Explore a studio environment for the application portion(s) of the lesson to reinforce collaborative learning and learning pedagogy. |

Figure 5-2: Summary of Future Course Revisions.

Reflection

Evidence-based design is a specific approach deeply connected to the existing ID design process, but allows review and development from multiple perspectives through data gathering, interpretation, and synthesis of design decisions. This research explores the potential relevancy local design practitioners believe an evidence-based design approach would have in their practice. It asked practitioners about their perceptions on implementing a research-based approach through the demonstration of an educational course which was carefully designed to first deliver information on the concept of evidence-based design through a variety of learning methods, and then engage the learners in thoughtful discussion on the implications of using evidence-based design in practice. The development of the prototype course involved multiple sources of information including literature sources, review of existing courses, participation in
teaching and learning workshops, and feedback from education specialists. Upon demonstrating the course, participants provided feedback on their experience. Their feedback indicated a high level of interest in a large and complex topic. The participants also indicated that the concept of research-based practice is significant to the success of the project, especially in “ideal” circumstances when client, resources, and the project budget coalesce. The limitations of the demonstration further informed the research by identifying areas for improvement as well as areas of strength of the course.

The results of the prototype delivery validate the relevancy of utilizing a research intensive approach in ID practice. All of the participants expressed keen and sincere interest in the subject matter and identified a desire to continue learning about evidence-based design. It is the determination of this research that a sample of convenience, although not statistically significant, still indicates strong interest and an overwhelmingly positive attitude to the relevancy of research-based design practice.
Implications of Considering Research as Part of Interior Design

This thesis explored multiple themes including research in interior design practice, continuing professional education, evidence-based design, and instructional design. The results suggest there is a role for research in interior design practice as confirmed by the participant practitioner’s feedback to the demonstration. Practitioners see the potential benefit that integrating research can have on their projects and how continuing education can provide a forum for knowledge-sharing. If interior design educators have evidence that practitioners are interested in complex learning topics then these can be incorporated into high quality professional and continuing professional education courses in a systematic and sequential way.

**Research in ID Practice**

We are always delighted to see innovative designs of interior space that make use of new materials, bold colours, and celebrate volumes of space but designers can do better. Interior design professionals can add to their professional profile by demonstrating the value they bring to the built environment through their specialized knowledge. One way to convey this value is to work with clients on a level that includes evidentiary support of design decisions. The results of this thesis suggest there is a desire for continuing professional education courses for practitioners eager to advance their professional acumen, but only if the value of this education is clear. It is hoped that understanding the role of evidence-based design will encourage practitioners to demonstrate the value of this approach with clients to produce better design solutions. Exposure to high quality interior design in the public realm will contribute to changing public and client perception of the value of ID professionals.

Design professionals may want to leave their mark on the world and enforce a distinctive individual style or signature out of a need for market competitiveness, ego, popularity, or status. However, we have equally strong convictions about providing our clients with solutions that will result in positive feedback and returning business. Designers are always asking: "what about design for design's sake?" However, in practice this often depends on the nature of project, the economic climate, and other members of the design team. A healthy continuing discourse and debate within the profession is critical to guide future practice. Increasing knowledge in this context can come from research, education, and experience. What we learn needs to be shared and used to build an even greater body of professional knowledge. Learning is a continuous process that does not end once a student begins practicing.
Research in ID Education

Literature on educating adult learners who are professionals was difficult to locate. Much of the literature available on adult learning assumes learning in an educational environment. Some of the learning context directly relates to adults who return to school for career changes rather than continuing education on a fully-developed career path. The conclusion reached from this gap in the literature is that professional development learning is left to the determination of each particular profession, not within the realm of education. This is appropriate in that each profession will have its own standards and requirements, which ultimately influence very specific content development. However, there seems to be no avenue for understanding and creating effective educational courses within the professional world. Education specialists cannot develop courses without an understanding of the profession in question, and professionals do not possess the skills required to develop high quality educational courses without some training in the subject.

This is illustrated by a recent encounter with the Continuing Education Network within IDEC. Networks are special interest groups where current issues in a specific area of interest are discussed. Within the Continuing Education Network, a short discussion with two of the members regarding the process of reviewing a continuing education course lead to the revelation that while there exists a training program for course reviewers, there is no training offered to create courses. This research identifies the need for the development of instruction to create relevant and robust continuing educational courses for ID professionals.

Practitioners can bridge the current gap in the rapidly evolving education of design students and the experience developed in work by engaging in meaningful and regular discussion about the profession of ID, not merely leaving this up to the academics. This research has suggested that design students are beginning to learn about researching skills before entering the industry and that practitioners need to be able to support these skills by learning them themselves. Practitioners can also be leaders in the education of design students by adopting research skills
now, rather than "catching up". If practitioners become early adopters of research concepts, they can influence the curriculum taught in design schools.

Continuing education programs are an excellent vehicle to disseminate knowledge and learn new skills to stay current in the industry, but the quality and level of continuing education must be raised and go beyond a quick-and-easy approach to collecting credits. It must go beyond just the popular topics of the time. CEU’s can provide a learning environment in which truly interested and engaged practitioners will find a way to build on topics such as design thinking, encounter opportunities for meaningful discussion, and engage in critical reflection of interior design practice. Perhaps a partnership with educational institutions can serve as a platform for all continuing education needs by practitioners. Together with the professional regulation bodies, universities could offer a central place for learning while ensuring a high level of quality in the delivery of the education. Increasing the connection between academics and practice through physical place could benefit the profession as a whole from the most junior students to the most seasoned and experienced practitioners.

**Research in the ID Profession**

Interior design as a profession faces public criticism on occasion because as an evolving discipline, the majority of the general public has deeply-rooted beliefs on the limits of the interior designer's work and responsibilities. Home renovation programs on television, for example, reinforce ideas that an interior designer works mainly on residential projects and do not clearly identify the detailed effort that goes into developing design solutions, working with clients, or managing construction activities or business practices. The researcher's personal experience validates this concept. Infusing researching skills, critical thinking, and utilizing tools such as evidence-based design allows clients and ultimately the public to recognize and respect the specialized knowledge interior designers possess.
Criticism of the interior designers capabilities on a building design project comes from within the design disciplines as well. The researcher has encountered design professionals, mainly architects, who place little regard on the special knowledge interior designers possess. However, interior design as a profession has evolved out of the need to better manage complex design. No one person can hold all the knowledge required to design and construct the built environment and so the job is distributed among engineers, technologists, interior designers, architects, constructors, project managers, urban planners, and a myriad of support staff. For such a complex undertaking as creating a space that meets the needs of the people who inhabit and use them, a careful balance of credible evidence and smart judgment must be maintained. As Dr. John Zeisel said, “the skill of these designers lies in putting the evidence in context, together with other information, and using judgment to give it weight and priority in decisions.” (Brandt, Chong et al. 2010:219).

**Next Steps**

The next steps to this research include sharing the results with other design disciplines, ID firms, and schools of design through publishing and teaching. Sharing the processes and results can be done by seeking publication and presentation opportunities in order to disseminate and share research findings. Submitting the document to the Journal of Interior Design and other design journals is the first avenue to disseminate the knowledge gained from the research. Presentation of the research project can also be made at conferences. The IDEC conference may accept a poster presentation or a short presentation format at an upcoming regional or national event.

Presentation of the results of this exploratory thesis work may lead to future teaching opportunities within the design community. The local Buildex conference in Alberta could also
pose as a venue in both Calgary and Edmonton. This avenue could also build upon the relationship with the IDA (as sponsors of the events), and reach local practitioners. For this to be a success, the course will require further development. The previous chapter identified several areas of the prototype course that would benefit from revision and improvement. These revisions should be tested and additional participant feedback gathered to measure potential success. Once the course is confidently complete, it may be submitted to the IDCEC for review. Upon approval, the course may be provided for credit.

Future course revisions could begin to incorporate elements which expand the intended audience to include interior designers from other Canadian provinces and possibly American states, as well as professionals from other design disciplines. Architects, industrial designers, planners, design engineers are possible audiences who would benefit from a course on evidence-based design. Research on the practitioner’s perceptions of a research-based design approach may be continued by gathering feedback from many more designers would provide valuable information for continuous course improvement as well as attitudes toward evidence-based design in various design practices.

**Final Thoughts**

At the beginning of this research I was convinced that ID practitioners weren't practicing all the phases of the design process and often skip steps to provide the client with concrete deliverables and fast. In my experience we were ignoring key elements of design thinking and development by focussing only on business proposals, construction drawings, and project management. We were not gathering information, writing concept statements, or following up with post-occupancy evaluations as instructed in our undergraduate professional degrees. Some of my ID colleagues have told me that they can't even remember what they thought the fundamentals learned in our
first professional ID degrees didn't help us get started in our profession. This always seemed to abruptly end the conversation. I think that our attitudes toward our professional practice have changed over time with experience and as a result experientially replaced the more normative and fundamental skills learned in our first professional design degree. For me, pursuing this thesis was an opportunity to become what Schön Described as the “reflective practitioner” and review my assumptions, habits, and practice as an interior design professional.

As a result of this process, I can more clearly see that the steps in the design process are not always skipped or ignored. We follow the process quite closely while adapting it to meet the needs of each individual project. There are small projects that simply don't require a thorough examination of every detail while other projects require a great deal more attention and find and record information in other ways. There are designers and firms that approach projects differently than what my own experience has been limited to and there are practitioners that have vast amounts of knowledge and experience. In the end, I still think that knowledge sharing has to come from both academic learning as well as experience.

This thesis work was challenging. I had never attempted instructional design before nor did I know how to go about it. I found resources that I didn't know existed and a community of design educators eager to help with my research. I relied on my own experiences to begin the process and built upon it as I learned about the fundamental concepts in education. It was particularly difficult to attempt to discuss all the relevant topics surrounding evidence-based design and research within a limited amount of time. Students attend university courses knowing they will take weeks to complete while busy practitioners demand high quality that fits their busy schedules. I felt even more constrained by asking practitioners to volunteer their time and probably made too many concessions to the course design to accommodate their needs. In the end, it is exciting to explore different concepts in teaching and learning for a specific group of
learners, although testing each one could be difficult. Unlike students in grade school or university, there is a freedom to develop and test contemporary teaching and learning models.

This research undertaking was not without barriers. Acting as both objective researcher as well as ID practitioner, I sometimes found it difficult to move between the worlds of academia and practice. It can be difficult to act as a translator when other practitioners are so focussed on multiple current project and clients while academics are often far removed from the day to day practice in the field. The gap between academia and practice exists in many professions and there is no clear way to bridge the gap that is so deeply rooted in our society and culture. As Terry Zborowsky's quote at the beginning of this chapter indicates, a paradigm shift is required to facilitate change, but how can this be achieved? I have explored only one possible path that could help us get closer to building this bridge.

Combining a systematic process of inquiry with the artistry of design is a fascinating and complex subject. It can be studied and explored through many avenues and from many perspectives with far-reaching benefits to design education and design practice. Ultimately, the forms created by design professionals need to be fully informed by evidence that will benefit everyone who interacts within the built environment.


References


Introduction

The following sections will explain some of the details of the Interior Designer's education, examination, experience, examination and licensing program which support the definition of Interior Design as a profession. In short, an individual seeking the professional path in the Interior Design field must complete a pre-determined number of hours of education and work experience to qualify for eligibility to write the NCIDQ exam. Upon successful completion of the exam, most practitioners may register with their regional professional body.

Interior Design Education Requirements

The Council for Interior Design Accreditation (CIDA) determines course curriculum that meets the standards for a high quality undergraduate (and in some cases graduate) education in interior design. Educational institutions throughout North America offer a variety of diplomas and degrees ranging from two to four years of study and some are based on the requirements set forth by CIDA. Over time, many programs have undergone change to meet the continuously raised
standards for preparation of students to succeed in the professional world. This resulted in a phasing-out of shorter programs in favour of full baccalaureate degrees.

Locally, Mount Royal University in Calgary, Canada, offers an Applied Bachelor Degree in Interior Design. Elsewhere, Bachelor and Associate Degrees in the Arts, Fine Arts, Sciences, or specific design-related categories make up the scope of programs. In Canada, currently only the University of Manitoba offers graduate level education with a Master of Interior Design. All this is likely to continue to change in the future as more institutions with Interior Design programs are making upgrades to their degree offerings to meet the growing needs of the industry.

This inconsistency and fast pace of change creates complication for designers pursuing their career paths. While educational programs which offer robust and dedicated curricula are ideal for students just starting their education, seasoned practitioners with years of experience have few, if any, options to upgrade their educational credentials. This is a significant factor to consider when seeking eligibility to write the NCIDQ exam, and in cases where regional jurisdictions create or revise policies regarding membership requirements with license-granting bodies.

The NCIDQ Exam

The NCIDQ exam is the central milestone to professionals within the interior design industry. It is generally considered a difficult exam requiring months of study and preparation. Exam material covers all aspects of professional practice that deal with the health, welfare, and safety of the public. The exam currently consists of three parts, two multiple choice sections and a practical portion. Questions in Part One cover the fundamentals of design while Part Two focuses on professional practice and project administration. In Part Three the examinee must solve design

10 The exam will undergo changes beginning in the year 2014.
problems through drawing application. Exams are offered only once or twice a year in major centres and require registration in advance. Successful completion of the exam is usually required for membership with local authorities having jurisdiction regarding licensing.

**Registration and Licensing**

Within North America each jurisdiction (State or Province) complies with their own political legislation including title acts and practice acts. Generally speaking, a Licensed or Registered Member of an organization in the building design industry usually means that an individual has met the requirements set forth by the authority, and thus having power to legally approve (stamp) drawings and other contract documents. This is the same concept as Architects and Engineers stamping documents with an official seal and signature, indicating their acceptance of legal responsibility for the work. For the ID profession in Canada, a licence to practice is governed by provincial legislation which differs across the country. In the province of Ontario, for example, the Association of Registered Interior Designers of Ontario (ARIDO) bestows the use of the title “Interior Designer” only to those individuals who meet the requirements of a Professional.

A title act for “Interior Designer” does not currently exist in Alberta. This means that anyone, with or without education or work experience, may promote themselves as an Interior Designer without legal ramification. Two major issues arise from this situation. In one, a lack of clear enforcement of the title allows non-designers to exploit the general understanding of Interior Design in a manner which may or may not be accurate. Promoting an inaccurate or even false impression of the field damages the profession as a whole, while perpetuating a false understanding of the profession confuses the general public and prohibits practitioners to gain recognition and respect as professionals. Secondly, without restriction of a title act, legitimate interior design practitioners are not compelled to register with the regional authority and are free to pursue successful careers in the field. This has prompted discussion on a proposed name
change, including "Interior Architect" which may bear a higher degree of respect and re-direct attention away from traditional understandings.

The title of Registered Interior Designer is provided through membership with the Interior Designers Institute of Alberta, more commonly known as the Interior Designers of Alberta (IDA). However, they do not provide the stamp required for sealing drawings and documents. The Alberta Association of Architects (AAA) carries a program to support Licence Interior Designers and provide stamps to seal drawings. Alberta’s legal situation is unique and complex.

These complexities are examples of the difficulty in determining a standard explanation of "Interior Designer". Furthermore, revisions to requirements at all levels are constantly and rapidly occurring in order to meet new and higher standards. For simplicity, this research will accept the general requirements of education, experience, and examination leading to membership and registration as the path to professionalism within the Interior Design industry.

**Continuing Education and Credential Maintenance**

Registered practitioners are required to complete continuing education courses throughout their careers to maintain their professional credentials. In interior design, these courses are labelled as Continuing Education Units (CEU’s). Each local jurisdiction will have their own requirements for the number of CEU credit hours required for each reporting period. In Alberta, interior designers registered with the IDA are required to earn 33 points in 3 categories every 3 years. Eighteen of these points must fall within the continuing education category (one point = 0.1 CEU hours).

There is no single database of all available CEU courses. The process for submitting a proposed CEU allows providers to submit the course to the IDCEC through four member organizations: the ASID, IDC, IIDA, and the IDEC. Each of these organizations will forward the course to the IDCEC
for review and processing. A list of approved courses is available to view on the IDEC, ASID, and IIDA websites. The IIDA’s Knowledge Centre provides the most comprehensive list of currently approved CEU’s sorted into nine main categories and several sub-categories as outlined in the ICDEC’s subject code index. This categorization method is not shared by the other organizations as each organize their course offerings differently. The IDEC website lists only twelve courses that focus on teaching methods, while the ASID website lists only “Pocket” CEU’s.

Interior Designers may also rely on their local chapter to arrange CEU courses in their particular area. In Alberta the annual Buildex event offers multiple courses, some of which are approved for CEU credit. In this example, seminars are organized into 5 categories: property management, architecture and design, construction and renovation, professional development, and green. Many designers take advantage of this event to accumulate several credit hours in a concentrated period of time. Similarly, but on a larger scale, the National Exposition of Contract Furnishings or simply NeoCon, which is described as the largest annual exposition and conference in North America also offers a multitude of seminars for credit. The courses offered in 2013 fall under one or more of fourteen categories or “learning tracks”. CEU courses may also be found elsewhere such as the InformeDesign website. This project, launched by members of the University of Minnesota, provides summaries of research articles related to Interior Design and a few CEU courses designed to provide education for credit specifically in the areas of research, many of which are offered in partnership with the EDAC Centre for Health Design. Their courses are categorized as either text-based, inquiry, or webcasts.

A survey of each of the above named sources of credit courses was done to better understand the current offerings. This research hypothesises that there are few courses with a focus on design thinking, research skills, or design processes because the offerings are flooding with product information or design trends and fashions. To more fully identify this perceived imbalance
the survey of CEU offerings involved the re-categorization of each of the current courses which were based on the IDCEC’s nine subject code index categories. Following the precedent set by the current organization systems of Buildex and NeoCon, each course was placed in the single category they would most likely be attributed to. Furthermore, the IDCEC’s instruction is to select the one most appropriate category for the course. The researcher was left to determine the appropriate category for most courses, (based on course title and description if available) because the original classification of the course is unknown. Despite this uncertainty, clear results are evident in those categories with the most and least number of course offerings.

The course codes were collected in a chart and totalled for each category and sub-category. The results are represented in Figure. A-1 below.

Fig. A-1
CEU Survey (2013)

An unofficial survey prepared for the purpose of this research demonstrates the majority of CEU course offerings in the category with the most general title: Interior Design; and the fewest courses offered in the category of Communication Skills. The category most relevant to this research is Interior Design Education which offers a very low proportion of course offerings.
The results of this survey show that the current course offerings lie largely within Category 2: Interior Design. This category covers design issues such as universal design, design processes, design trends, and space planning among others. The dominating figure can be attributed to the sub-section of “Sustainable and/or Environmental Design”. Many of the courses offered respond to the popularity of “Green” design in recent years. Similarly, the Design Specialties category is dominated with courses in just 2 of the 15 sub-categories: Corporate/office and Healthcare; two very popular topic areas responding to current market needs. The second highest number of courses is found in the “Technical Knowledge” codex and in the subsections of Textiles, Floor Coverings, Building Construction and Materials, and Lighting Design. These figures were expected and support the hypothesis that the majority of continuing education courses focus on products and finishes.

Courses on research and evidence-based design would most likely fall under the category of Interior Design Education. Of those found, most are designed for instructors. We do see up to 9 courses out of 21 focused on research skills. This category indicated more courses than expected were offered on research in design, although it still represents only a very small percentage of the total course offering. As such, it is clear that more courses on design research should be offered to Interior Design professionals.

Assessment

Several issues have been discussed in each category of education, examination, and licensing to convey an understanding of the current issues related to the general knowledge and background of Interior Design. Many of these issues can be largely attributed to the overall fast pace of change within the industry in the effort to achieve a high level of professionalism. However, these issues will not be further discussed in great detail, allowing the research on the specific matters related to Evidence-Based Design in Interior Design through Continuing Education to carry on
free from diversion. For the purposes of this research, an Interior Designer shall be identified as an individual who has met the requirements (or is pursuing the path) of education, experience, and examination leading to licensing and registration with the appropriate granting authority. (A student who has not graduated or begun practical experience is not included in this definition but is instead defined as a student.) The definitions published by the NCIDQ shall be followed. In this research it is accepted that interior design is a profession with a growing body of knowledge and that the topics of education and practice are highly relevant to maintain this position.
appendices

APPENDIX B: PROTOTYPE V2.0

The following pages include the revised presentation slides and pre-amble which was demonstrated to the group of ID practitioners.
Course Description

Current issues in interior design include topics related to education, professionalism, and design thinking. Evidence-Based Design (EBD) is a concept that combines these important issues with far-reaching implications. It is about making design decisions grounded in a body of evidence. It provides a way to articulate and defend design decisions with purpose and meaning. It gives designers additional tools for communicating their ideas to clients, and to arm their clients with explicit information to take back to their stake-holders. It makes designers reflect on their own work and raises the bar for design excellence and innovation.

Evidence-based design is not a new idea. Many practitioners working in healthcare, educational and corporate office design may already be familiar with this concept. EBD can be described as an additional layer of design thinking, working in parallel to the existing design process to produce high-quality designs based on an understanding of existing designs and the needs of the project at hand within the realm of a larger context.

This course is intended for Interior Design Professionals seeking a continuing education course rooted in exploring design concepts. This is an Intermediate level course as defined by the IDCEC.

Throughout this course, participants will learn about researching skills, methods for data gathering, and analysis and synthesis of data. After taking this course, intermediate and senior practitioners will be able to develop a language more rooted in research practice to communicate effectively not only with colleagues and clients, but also mentor new graduates entering the industry with unique skills and knowledge. Designers will be able to add evidence-based design to their scope of services benefitting clients, and understand how they can contribute to the greater body of interior design knowledge.

Participatory learning methods such as group discussions will be utilized parallel to lecture which introduces designers to Evidence-Based Design concepts. A studio exercise is included to reinforce learning through direct application. Learners will be evaluated based on the demonstration of their understanding of course content through participation of discussion and presentation of their studio work.
Course Outline

Instructor: Cynthia Nemeth BAID, LEED-AP  cenemeth@ucalgary.ca
Hours: 3 hours
Pre-Requisites: Intermediate
Materials: Will be provided in class.
Readings: A list of reference material will be provided.
Evaluation: Presentation of self-study assignment – 50%
       Participation in group discussions – 50%
Topics:

Part I: Comprehension

Context
What does evidence-based design mean? Class participants will be asked to come to class prepared with a piece of information they have found on their own on evidence-based design. Group discussions early in the class will set the tone for a safe, familiar, and comfortable environment for participation and interaction. An overview of EBD in a historical, practical, and learning context will introduce the class to the basic concepts and lay the foundation for more complex discussion. Learners will develop a working definition of EBD throughout the course.

Critical Thinking
Participants will learn the critical thinking process, when and how to work with it, and how it contributes to Interior Design practice. Participants will engage in a class activity to reinforce learning.

Research
Learners will learn the difference between “research” and “information gathering”. They will learn and use academic language such as “methodology”, “analysis”, and “synthesis”. Participants will gain an understanding that their training and practical experience already follows some of the elements of EBD practices.

Part II: Application

Data into Process
In an individual studio exercise, class participants will brainstorm and identify practical methods for presenting analysis and synthesis of data gathered in an EBD approach. Learners will work with a case
study of their past professional experience and re-visit the design process to identify at which point(s) evidence-based design practices were applied and can be built upon.

Part III: Critique Discussions
Working off the advantages and disadvantages the class have identified, the instructor will facilitate a series of discussions on the issues related to EBD that have not been clearly resolved. Some examples may include costs of additional services, roles and responsibilities, and time and scheduling barriers. Overarching issues of design complexity, intellectual property, and perceptions of value may also come into focus. The class participants will also have the opportunity to identify and discuss other topics they find important to design practice.
Welcome everyone! Thank you for taking the time to participate in today’s course on Evidence-Based Design. I hope you find today’s program informative, fun, and valuable to your practice.

About the Instructor

My name is Cynthia Nemeth and my background is that of an Interior Designer. I graduated from Mount Royal College in 2002 and I’ve been working at the local design industry for 10 years. My experience is mainly with the commercial design of office spaces and industrial buildings including those for the oil and gas industry. I have some training as an instructor through my graduate education experience but I am first and foremost a practitioner, like you. That is how I designed this course: it’s designed by practitioners for practitioners. I used my knowledge and experience as an Interior Designer and sought out the expert advice of experienced instructors, course designers, and experts on EBD. I am also asking for careful feedback by all the practitioners who take this course and use your anecdotes, questions, and comments to continuously make improvements and to make sure examples I am using are current.

Participant Consent Forms

This course is like a pilot project and a component of the research work I am doing as I work toward a Master’s degree. This is a formal research project and if you’re going to work with people in any way, you need to get consent from the Ethics Review Committee. Part of those requirements is filling out these consent forms by each and every participant and we have to do this before we begin. Some of you may have seen this already in the early emails I sent out but some of you very graciously signed up just within this past week so you haven’t seen this yet. I’ll go over the entire form: ((( )))

Have everyone sign the forms and hand them in. They keep a copy signed by me.

Evaluation Forms

We will have time at the end of the class for you to fill out the course evaluation forms but I wanted to introduce them now because there may be some of you who want to fill it in as we go instead of leaving it all to the end. This is really important to me because this is my data. It is your feedback that will allow me to make conclusions in my thesis. And I want to emphasize that I will not get a “good grade” if you all say you loved this course. It’s my job to report the facts and to analyze the data. If there’s something you didn’t like, that’s ok. Please let me know so I can make appropriate changes and improvements. I fully expect a variety of responses and I encourage you to be honest and provide as much feedback as you can.
Slide 2: Outline

The first thing I want to do is give you the big picture, an agenda for what we are going to be doing in today's course.

In an Introduction, I want to tell you why I put this course together and why I think EBD is a relevant topic.

Then I want to give you a chance to talk. We're going to have a lot of discussion today and I'd like to start by asking each of you to share what you have found on EBD before coming to the class.

As we begin to get into the course material, I'll go over the Learning Outcomes which are the key items I want you to be able to leave here with.

We'll begin Part One where I'll tell you more about the history and background of Evidence-Based Design and put all this into context. We first need to understand what it is, what it means, and how it relates to our work as Interior Designers. We'll talk about Critical Thinking and how this skill helps us to make informed design decisions. Then we'll spend some time talking about what Research is. Most importantly we'll make connections between these ideas and the design work we do. We'll do this through group an activity on the Design Process and leave it on the wall.

In Part Two we'll move the discussion into application of what we've just covered in a studio-style exercise. I'll show you ways to gather, interpret, and present the data or information you collect. We'll go back to the process we posted on the wall and we're going to try to place the tasks and concepts we've discussed into the appropriate locations along the continuum. Then I'll stop talking and ask you to work on an assignment and then present your findings to the class. (Depending on the size of the class you can work on your own or in pairs or small groups.) I'll be coming around to speak with each of you as you work through the assignment.

Part Three will have a different structure. We're going to identify some of the advantages and disadvantages of applying an EBD approach in the real-world, on real projects in a business with cost factors, scheduling requirements, client demands, intellectual property rights, affects on our design culture, and other issues. This is an opportunity for each of you to draw on your past experiences and years of practice to bring to the surface those big issues.

We'll finish with a summary of the key points we covered today, and then finish up with the course evaluation. I'd like you to tell me about your experience with this course, what worked, what didn't work, how this may compare with other continuing ed. courses you have taken, and what improvements you may suggest.
Slide 3: Why EBD? (Bridge)

Design is complex! There are so many factors to consider in any design project, large or small. We need to deal with people: clients, consultants, etc. and that takes some knowledge of psychology. We need to deliver results through reports, drawings, and other deliverables. We need to balance design with business and deliver on time, on budget. We need to meet the needs of the clients, the design requirements, and our own professional standards. We spend years, both in school and in practice, developing our skills and even then no two projects will be exactly alike. We spend our careers continuously learning from every experience.

So why consider an EBD approach? One answer might be: to help us get through this complex activity successfully.

Literature: Several leading authors of interior design academic literature discuss the importance of EBD as a tool that will have to become a part of every designer's arsenal of skills.

Education: Jr. Designers entering the industry with full Bachelor's and Master's degrees. They are bringing with them a new skill set that Sr. Designers didn’t get in their formal education because the educational standards in our industry are rapidly changing. So how are we as practitioners going to prepare for this? Continuing education and courses such as this one are the bridge to this gap.

Practice: Throughout this course we will examine how EBD may be relevant to Interior Design practice and you will have the chance to tell me whether it is or not.

Application: EBD is more conceptual than tangible but I want to emphasize the point of applying what we learn because I think that is important in how designers learn and it was a big factor in the design of this course. I want to tell you my story about taking the LEED exam because it’s an example of learning through application. I spent a lot of time memorizing the reference guide (the book) but I failed the exam by 3 points. After that time I had the opportunity to work on the two LEED projects and over the next few months I spent a great deal of time making calculations, checking the consultant’s work as they sent in their forms, and filling out the templates (worksheets) myself. I felt this hands-on application really helped to reinforce the original concepts. I passed the exam the second time and I remember feeling much more confident that day. Those same kinds of hand-on learning concepts are what we’re going to experience in this course today.
Slide 4: What Did You Find? (Pre-Assessment)

To help prepare for today’s course I asked you to try to find one piece of information on your own about EBD, and to select a real project you have completed in the past that we will use as case studies in the course. Let’s take a few minutes to go around the room, give everyone a chance to introduce yourself, your name, a little bit about your design experience or field of interest, and then what you found. If you didn’t find something, tell us what you hope to get out of this course today.

After…
Thank you everyone for doing some pre-course work. We’ve heard an array of responses, some of you found something pretty easily, others had some direct contact with EBD. I think what we can get out of this exercise is the understanding that EBD is an enormous topic! There are a lot of ideas and concepts to it, we won’t be able to cover them all today, but we will try to get through a brief introduction and skim the surface of some of the key issues. And You as a class can help to steer the course by sharing your thoughts and experiences as designers.

Slide 5: Objectives

We develop learning outcomes not only as a good teaching practice but because it helps to guide us through the entire course. This is our road map and it tells us up front what is to come and what we are expected to do and to learn.

- At the end of this course, participants will be able to:
  
  o List at least five methods for data collection related to interior design projects.
  
  o Discuss the advantages and drawbacks of employing an EBD approach.
  
  o Analyze current methods of working and designing through a reflective practice studio experience.
  
  o Evaluate the realities of applying an EBD approach through group discussion.
  
  o Construct a plan for applying an EBD approach in a design project.
Slide 6: Activity #1

- What is the Design Process?
  
  - Explain that to get the ball rolling we are going to start with something familiar.
  
  - Have participants identify all the phases of the “typical” design process (pre-design, schematic design, design development, contract documents, bidding & negotiations, construction administration, post-design)
  
  - Instructor to write these on colourful paper and then ask class to arrange in order.
  
  - Identify some of the activities that normally occur in each phase. Use Post-It’s.
  
  - Post for all to see and refer back to this throughout the class.

- Concluding Statement:
  
  - EBD is a part of this process, it is not an entirely new way of doing design work. It is not a prescriptive formula that will guarantee perfect solutions. It is an added layer to the existing Design Process and the tasks augment what we as designers already do. As we learn about EBD we will return to the Design Process to see how it might be affected.

Slides 7-9: Topic #1 Context

- EBD has roots in evidence-based medicine
  
  - Doctors make diagnosis based on the collection of evidence: they ask you questions, they examine you, and they order medical tests.
  
  - Similarly, a basic definition of EBD is making decisions based on collected data (evidence) or (existing research in the field).

- Current Applications:
  
  - Healthcare Design – people in the healthcare industry have engaged in EBD strategies for many years. They tend to understand the significance of employing a more scientific approach because they see the bottom line. In this case, seeking design solutions which facilitate faster recovery times for patients
reduces stress and strain on the healthcare and economic systems. They also understand the importance of providing an excellent work environment for medical staff.

- i.e. Studies on the pile height of flooring materials (carpet) influences which product to specify in a senior’s care facility where many residents use wheelchairs, walkers, or just need to avoid tripping hazards.

- Educational Design – Similarly, we’re seeing more and more studies on learning environments, especially for kids in elementary schools. These design ideas are also related to learning theories.
  - i.e. The Maria Montessori model includes ways to “prepare the environment” so that its function compliments the student’s psychological learning needs.

- Workplace Design – For those of us familiar with corporate office design you’ve likely heard product representatives talk about their company’s offerings that aid in employee satisfaction and productivity
  - such as ergonomic office furniture, thermal comfort controls, acoustic and privacy control, views to the outdoors, and access to natural light.

- Terminology
  - We will be using new terminology in the course today. You may have already noticed certain words or phrases I’ve used, or you may already be familiar with words like “evidence-based design” or “research” or “critical thinking” but today we’re going to focus on putting these ideas in context with Interior Design Practice.
    - (worksheet for reference)

- Resources
  - We will also touch on some of the resources you can use when applying an EBD approach. To start, I’d like to direct your attention to the reference sheet in your handout package. This is a list of books, articles, journals, websites and other information where you can find more information when you want to “do research” for your design projects.
  - Let’s go through these now. On the first page is a list of books that are readily available in bookstores or online. They’re great source of additional information from their own bibliographies. Some of them even list other sources like websites, much like I’ve done here. I brought some of them in today if you’d like to take a look at them you’re welcome to.
  - On the second page you’ll find a list of articles. Some of these are available free online, others are only available if you have a subscription to the academic journal in which they are published. A website like InformeDesign offers written summaries on many
articles related to Interior Design from a number of academic journals. This website does not add new summaries at this time, but you can still access numerous topics that are fairly recent. (Demonstrate)

- You can see this website on page 3 along with a few other websites I’ve used recently in preparation for this study. There are certainly a lot of websites out there so any further information will depend on the specific topic you are looking for.
- I also want to bring to your attention a couple of other CEU’s on EBD that are available. Denise Guering and Caren Martin are professors at the University of Minnesota. They are experts on EBD who have published widely on the subject and teach courses at the university. Evidence-Based Design by Denise Guerin is an online presentation which can be purchased for download from the InformeDesign website. I’ve purchased this one myself and found it to be a great one-hour introduction to EBD. If you’re looking for more in-depth description on the background and context beyond what we will cover today I suggest you take a look at this CEU. The second one, created and presented by Caren Martin is a new course which communicates a full university semester course on EBD over a day-long workshop by the author herself.
- I don’t want to turn you all into full time researchers, but it is important to know where to look for information, how to know if it is reliable and valid, and then how to use or apply it in design practice.

Slide 10: Topic #2 Critical Thinking

- Critical Thinking is systematic process that includes reflection, that you can use to help make decisions, and to determine if the information before you is true, valid, and reliable.

- Systematic Process:
  - Define the Problem
    - What is it that you are trying to find out?
    - What is it that you are working towards?
    - In a design situation, we may need to design a new building, renovate an existing space, or gather information and report it in a concise, written document.
    - This is the stage where you or the design team can determine the end goal.
    - Knowing the end goal, you can now design the methods you think are most appropriate for getting to that goal.
Every design project is different. There is no single, correct formula.

- **Determine Appropriate Methods**
  - Now that we know what we want to find out, we can think about the different ways of meeting that goal. In other words, we need to gather data.
  - How do we know what data to gather? It should all be guided by the goal. You have already defined the problem.
  - This is where you can be creative and brainstorm all kinds of ideas.
  - Try to think of the problem from many different angles, from many different perspectives.
  - For example, I was working on a DBM, we needed to think about our audience: who will be reading this and what information do they need? We tried photographs, a lengthy written document, charts to summarize, etc.
  - We collected information by going out into the field, by taking photographs, but talking to people (both informal interviews and planned meetings with specific representatives.)
  - If you were conducting a different kind of project, you might have access to other user groups such as patients, chemicals and materials, or historic documents.

- **Prioritize Methods for Gathering Data**
  - Now that you have a bunch of ideas, you need to be a little more practical and realistic. Ask yourself, is the method feasible? How much time, money or resources does it require? Do we need to travel to get the information?
  - It's important to identify and set these limits. Otherwise your project can easily get out of hand you end up wasting time gathering data you don't need or won't get a chance to use.
  - You may think that everything is important or might come in handy at some point, but if you have clearly defined the problem from the start, you should be able to use your judgment to set appropriate limits.

- **Interpret Data and Form Logical Reasoning**
  - Now that you have collected your data, what do you do with it?
  - You can organize it.
  - You can group pieces together.
  - You can look for patterns.
  - If you make a claim, do you have the evidence from your data to back it up?
  - This is what you need to draw conclusions. What does the evidence say?
Recognize Assumptions

- You’re probably coming to some conclusions already at this point, but it is important to stay objective.
- Take some time to examine your data from different points of view.
- Are you exaggerating? Are you filling in gaps?
- Try to intentionally poke holes in your project. Acknowledge gaps, and then you can deal with them.
- You need to find a balance: Let the data speak for itself, but also keep it within your specified context.
- One way to do this is to acknowledge an opposing outcome, but then reiterate how the data (or evidence) fits in with your defined project (problem) to reinforce your position.

Is the Data Relevant?

- Sometimes this process makes you realize things about the project you didn’t realize before and you need to re-define the problem and you circulate back!
- But that doesn’t mean all your data is irrelevant, it just means you have to re-examine the defined problem, the limits and assumptions.
- Constantly reflecting back.

Make Accurate Judgments

- Ok, every project has a deadline and you need to find some closure for all the work you’ve done.
- You want to make an informed decision.
- You use the data/evidence, and you use your own knowledge and experience (and I would argue also your intuition).

When would you use Critical Thinking? (wait for answers from the class)

- We can use Critical Thinking skills at any time. Design is an iterative process and we will find that reflecting on not only our decisions, but our decision-making PROCESSES, will help us plan more effectively with clearer results.

- Critical Thinking skills are really important in EBD because we’re trying to make informed decisions. This is how we know if the information we gather is valid and reliable. We don’t just take the information at face value; we need to think about how it will help the specific project. When you come across data or information, ask yourself:

  - **Who** is providing the information? (the author, the publication, their reputations, their biases, etc.)
Appendix B: Prototype v2.0

- **Why** did they conduct the study? What were they trying to find out?

- **When** was the information published and would it still be relevant today?

- **Where** was the study conducted and would the results be appropriate in another location/region?

### Slide 11: Research (1)

Who has done research before? (wait for responses)

Sure we’ve all been told to write “research papers” or asked to find out some information about something and it was called research.

Research is **more** than gathering information. When we “look something up” we are finding out what others have already found out about a topic. So really, we are “gathering information” at this stage and that’s a very important aspect of research, but it is not research in and of itself.

Research is about adding something **new and original** to the greater body of knowledge. To build on what others have found out. For example if doctors or scientists identify a new disease or come up with a new treatment or medication, then they have added something new and original to the body of knowledge in the medical field. Then they can publish their work and make it accessible for others to find and then they can build upon it even more with the next iteration.

In the case for Interior Design, we may do many office projects or residential projects again and again but each one is different and unique. Sometimes we get a project where we are particularly challenged to find design solutions. In Design, just like other disciplines, we have journals and publications that communicate new findings, theories, or approaches.

Research involves a systematic inquiry process that gives the work rigor and integrity. We see in scientific disciplines, especially, a strict adherence to this linear process, and similarly design is a linear process. There is a general movement from beginning to end. But there’s also room for modification and adaptation.

These are the key areas we need to look at when talking about a Research Process:

- Methodology
- Data Collection
- Analysis
Slide 12: Research (1) - Methodology

- The Methodology is the plan. This is when you determine how you will go about getting all the data you need and what you plan to do with that data.
- First, you should have a clear idea of what you want to accomplish. This is another way of saying you first need to define the problem.
- To design the methodology you might start off by asking yourself some questions like:
  - What kind of information (data) do you need?
  - How will you get it?
  - What resources do you have?
  - What information would inform the design project?

An example might look like this:
- Question / Problem:
  - The goal you are working towards
- Background:
  - What you already know
- Procedure:
  - For gathering and then analyzing the data
- Product:
  - How will you present your findings?

Slide 13: Research (1) - Data Collection

- Data is the information you need
- You can collect data from several sources. In design we may look at:
  - Literature (publications)
  - Existing Drawings (or similar building type)
  - Case Studies (similar projects)
Some data is measurable and can be reported by numbers and statistics:

- **Building Systems**
  - Heating and cooling – temperature, air flow,
  - Lighting – intensity, heat, energy use, colour
  - Plumbing – temperature, water pressure, flow rate,
- **Sustainability**
  - Energy use, water use, calculations.
- **Human Factors**
  - Human measurements, usability analysis (needs)
- **Barrier-Free Design**
  - Code requirements; height, width, and depth measurements; circulation
- **Site Measurements**
  - Create as-built drawings. Verify drawing you were given by a third party.

We can create data by taking some kind of action and recording it. This is another opportunity to use our creativity in designing the method for collecting information and how to capture it:

- **Site Measurements**
  - Create record drawings after.
- **Site Photos**
  - This is especially useful in renovation projects where we have an existing space and want to keep some elements, or have unusual elements, spaces, or materials.
- **Site Experience**
  - How will you record an experience? Sounds, smells, feelings. Who’s experience?
- **Drawings**
  - Existing; hand sketch; CAD drawing;
- **Models**
  - BIM; wood; massing model; to help understand the existing space; or help understand a new space; detailed for display;
- **Interviews with Clients and Users**
  - How do you design the questions/questionnaires?
  - Who do you want to talk to? Who do you have access to?
  - How do you know you’re getting the information you need?
- **Post Occupancy Evaluation**
  - We can determine what information to collect. Is it general? Project specific? Will you create a questionnaire, a summary chart, a visual record? What are you collection information for? Is it for internal purposes? Is it a part of your client expectations? When should this be done? After 6 months?
Data collected from this can inform future projects with not only the things that needed correction or improvement, but it can also help to identify what worked really well, and if you can identify that you can be sure to do it again.

Slide 14: Activity #2

- **Worksheets – 5 minutes**
  - Think of a project you have personally worked on or choose from the list.
  - Select the most appropriate methods for collecting information.
  - Describe why you made these choices.
  - Share with the class – 5-10 minutes

- **Follow Up**
  - We’ve heard of a variety of ideas and some common uses.
  - Some of the common methods seem to be implemented fairly often (taking photos and site measurements, for example). Did you think of these as “research methods” before? New context.
  - Did we hear of any ideas that weren’t on the list?

Slide 15: Questions?

- Jot down questions here. Review during course evaluation.

Slides 16 - 18: Research (2) - Analysis

- **Data Management**
  - As you are collecting your data it is important to keep it organized and accessible. Every individual and many firms have file management systems but sometimes there is creativity in the creation of documents that show the data.
As you're creating ways for organizing and storing your data, think about how you might be able to use this information in future projects. How can you create a database that is easily accessible for future use?

- Accessible by other in your team, or another team in the office depending on the organization of your company.

Now that you have all this data you need to do something with it. Analysis is when you take something apart so that you can examine the individual pieces, or small details.

- By taking things apart you can examine the individual elements that make up the whole.
- Then you want to look at the possible relationships between these pieces. What fits together and maybe you’re going to find something new and original at this point. Look at it from many different angles.
- You also need to interpret what you find. You need to think about it critically to determine if the data is valid and accurate.

You’ve done all this work. Are you going to keep it to yourself? You likely need to present it to the client, or even to your colleagues. At some point we usually find ourselves needing to “sell our ideas” or to justify our decisions. There are lots of ways to do this. Can anyone name one of tools we use to present ideas to clients?

- Write the students answers on the board as they call them out, then add my own list:
  - Design Basis Memorandum
  - Request for Proposal
  - Other Reports
  - Concept Images
  - Concept Drawings / Sketches
  - Charts / Matrix
  - Written Descriptions

Now you can add references to a published study, or demonstrate information you have gathered specifically for this client/project.

Has anyone has a client who had to take information back to their decision-makers, superiors or committee? If you can prepare and present the evidence you used to make these decisions you can give them the tools they need to convince others.
Slides 19 & 20: Research (3) - Synthesis

- While analysis was about examining the small pieces you’ve pulled apart, Synthesis is taking what you’ve learned and putting it all together.
  - Create New Relationships
  - This is where your innovation and creativity really gets a chance to shine. By this point you know what other’s have done, you know what other designs are already out there and you are in a position to set yourself apart.
  - This is how the design can become more than providing your client’s checklist of rooms/spaces. Programming means doing the research and collecting the data, not just a Program of requirements. It is in your design solutions where you can show the synthesis of your research data.

- Again, we need to present it to the client and colleagues. What kinds of tools do we create to convey our design solutions?
  - Write the students answers on the board as they call them out, then add my own list:
    - More Detailed Reports
    - Design Drawings
    - Preliminary Specifications

Slide 21: Activity #3 – Design Process Re-Visited

- Let’s go back to the Design Process continuum we posted at the beginning of the class. We’ve talked about:
  - critical thinking
  - designing a methodology for gathering data
  - managing that data
  - analyzing it and,
  - synthesis of the information Discussion
• Instructor to write the above items on post-it’s and tack them up on the wall by the Design Process.

• We’ve just applied an EBD approach to the Design Process. It works within the system we already use. I see it as an additional layer of rigor not a replacement. Let’s discuss some of the similarities and differences.
  
  o Is there anything here that you think is something you already do anyway?
  
  o Is there anything here that is new to you?
  
  o Is there anything here that you think is redundant?

• Let’s talk about Programming
  
  o Do most of these cards land in the early phases of the Design Process? Has the term “programming” come up in our discussions? How would we define (or re-define) Programming? Discuss:

  o I think we change the idea of “programming” as we begin to practice interior design. In school I remember programming as gathering information to build a concept for the design. But now we’ve come to think of the Program as a list of what the client wants: 1 reception, 4 meeting rooms, 10 private offices, 32 workstations with this group adjacent to that group but also in close proximity to the side entrance…etc.

  o Can we have an EBD approach if we don’t have a programming phase in the design process?

  o How might we think of the Design Process differently if we wanted to apply an EBD approach?

Slide 22: Break (15 min.)

Slide 23 - 24: Post-Assessment – Studio Exercise
(30 min.)

- When I was studying EBD and throughout the process of designing this course, I went through a process where I examined three past projects I worked on. These projects were completed using a “typical” or “traditional” design process, like the one we posted at the beginning of class. I deconstructed each project to identify the individual elements and then I reconstructed the project as though I would apply an EBD process. Then I looked at what changed and I noted several things that stood out. I’m going to ask you to do a similar exercise today.

- Assignment:
  - Work with the project you brought to class and examine the elements of the design process that were used.
  - Reconstruct the project this time employing and EBD approach. For example, create a plan of action you or your design team might take to collect and analyze data.
  - Examine what changed between the two approaches.
  - Identify potential obstacles as well as benefits to employing this approach to your project.
  - The facilitator will visit each designer for one-on-one consultation.
  - If there’s time, share your ideas with the class at the end of the exercise.

**Slides 25 & 26: Advantages and Disadvantages**

Now that we’re all more familiar with the concept of evidence-based design and what kind of work it involves, we can start to think critically about how we might use and apply these strategies in our practice.

Let’s make a list of the advantages and disadvantages of adding this approach to our regular practice. If you went back to you offices tomorrow and decided that you would start implementing EBD, what kinds of things would need to consider?

- List advantages and disadvantages that the class calls out on the big screen.

Show my list of advantages and disadvantages through my de-construction/re-construction process if a deeper, richer list is required:

  Advantages:
  - Increased knowledge
By spending some time finding out about similar projects and understanding various approaches or perspectives, designers begin a project with more knowledge.

Reflecting on work done throughout and after the project helps to share your knowledge with others.

• Increased scope of services offered to clients.
  • There are tasks required in an EBD approach that may not be completed in a traditional design process so this may mean a change in the scope of services offered to clients. Telling them up front about the research that will be done and why will give them an understanding about what they are paying for when hiring us for their project.

• Increased complexity
  • Complexity in this context isn't meant as making a job more complex than is should be, not to fill it with unnecessary tasks. Design, in general, is a complex process. Designers have to deal with an enormous number of variables at any given moment. We have to anticipate and consider the possible consequences or implications of our design interventions while keeping the health, safety and well-being of the users or occupants at the foremost of our minds. When employing EBD, we’re facing that complexity with more rigor and attention.

• Post Occupancy Evaluations.
  • I’ve often done many “final walk-through’s” of a space at the end of a project but how many designers build in to their projects time and resources to survey the users to identify what worked well and what needs improvement?

• Increased Value (perceived).
  • This is a difficult topic to describe and we’re going to talk about this a little further so I can hear your thoughts on it as well. What “increased value” means to me in my analysis, is that the overall effect of employing and EBD approach leads to a different perception of Interior Design by the general public. All of the above topics (knowledge, scope of services complexity, POE’s) ultimately speaks to the credibility and professionalism of Designers. As we use the tools in EBD to educate and communicate with our clients, they in turn gain a better understanding and hopefully respect for the work we do.
Disadvantages:
• Increased time spent on a project (planning, data collection, data management, etc.)
  ▪ How many of us can relate to those times when we have numerous projects on the go and fewer and fewer time and resources to make our deadlines? Now we need to spend even more time in pre-design, meaning not producing drawings which is what the client wants to see.
• Increased client costs (due to increased time and resources).
  ▪ These additional time and services will need compensation. Where is the funding coming from? Is it ethical to charge clients for our “education” about our own industry? Do clients simply expect the designers they hire to be up to date on all the latest developments in our industry?

Let's talk more about these important issues.

** The following slides are possible topics of discussion. First, let the class decide on the discussion topics. Use the following slides at discretion to fill additional time, or start/continue discussion if there is a lull. We may not get to all of the topics.

** Slide 27: Real-Life Implications – Scope of Services**

• Let me throw some questions out to the group and we can also see where the discussion takes us.
  ▪ How would EBD affect or change the scope of services provided by Interior Designers?
  ▪ Is this an advantage or a disadvantage?
  ▪ How significant of a change would this be?

• Take notes on the discussions. Review after class and refine and retain for future classes.
Appendix B: Prototype v2.0

Slide 28: Real-Life Implications – Scheduling

- Let’s move on to the next issue.
  - How might an EBD approach affect how much time is spent on a project? Certain parts of a project?
  - Does this advance or hinder a design project?
  - Should EBD be applied to every project or only certain ones due to changes in time and scheduling?

Slide 29: Real-Life Implications – Costs

- How might project costs be affected by an EBD approach?
- Is this an advantage or a disadvantage?
- How significant of a change would this be?
- Do you think clients would be willing to pay additional fees for additional services? For standard services?

Slide 30: Real-Life Implications – Value

- Would EBD practice change the way the public views and understands the Interior Design profession?
- Does having designers on staff that are experienced in research methods increase their value as employees?

Slide 31: Real-Life Implications – Complexity

- Designing is a complex process. There are many factors to consider and the implications of any design intervention in the built environment.
- A “tame” problem is like a math equation. There is one right answer and there are clear wrong answers. “Wicked” problems are dynamic and hard to pin down. Everything you do to the
problem changes it. If you define it, re-define it, set boundaries or limits to it, attempt to solve it, etc. you’ve changed the problem thereby making it an entirely new problem. Unlike a math equation a wicked problem is extremely complex.

- Does complexity influence design positively or negatively?
- How might an EBD approach affect the complexity of a design project?

Slide 32: Real-Life Implications – Intellectual Property

- Designers tend to be reluctant in sharing their designs. Is this a true statement?
- What might inhibit designers from writing about and publishing their designs?
- If we did publish articles about our design solutions, who would we want to read it?
- If employing an EBD approach, would you as a designer allow others access to information from your past designs? Why or why not?

Slide 33: Real-Life Implications – Culture of Criticism

- Is criticism positive or negative?
- Do you offer criticism to your design colleagues?
- Would you be open to receiving design criticism from designers outside of your company?
- How might EBD practices affect how we communicate and share our design ideas and at what stage in the project might this occur?
Slide 34: Real-Life Implications – Science vs. Art

- Does anyone see a conflict with following a systematic approach for something as creative as ‘design’?

Slide 35: Real-Life Implications – Designer – Client Relationship

- Do you think EBD knowledge would affect the designer/client relationship?
- Can you foresee changes in client involvement, or in their decision-making processes?

Slide 36: Summary

- We’ve come to the end of the course for today. We covered a lot of material so let’s do a quick summary so we leave with all of this fresh in our minds.
- What is EBD? Can we answer this now?
  - We put it in context by using the Design Process:
    - It is a current issue in the field of Interior Design.
    - It incorporates skills that are becoming more and more prevalent especially with new grads entering the workplace but may not yet be prevalent in practice.
  - We talked about Informed Decision Making through Critical Thinking. These skills are important in everything we do. This is how we do our due-diligence in understanding the design problem, gathering the information we need, and in communicating our ideas.
  - Research is a big element in EBD in the sense that Designers need to understand how to Collect Data, Analyze it, and then Synthesize the information into a defendable design solution.
- Application – Studio Exercise: different kinds of processes
- We talked about the tasks, the kinds of actions we take when applying an EBD approach: we touched on different Methods of Data Collection, and how we Present the information as we gather it and work with it.

- Then we participated in a studio-style exercise where each of you spent some time working (on your own) on a real-life project.

- We talked about how EBD is an added layer to the existing Design Process, not a replacement of it.

- **Critique**

  - Then we had some stimulating discussions about the perceived real-life application of an EBD approach. The Scope of Work defined in our contracts is likely to change to compensate for cost and scheduling variations and also the factors affecting Intellectual Property and the Designer-Client Relationship.

  - At the beginning of the class I said that Design is Complex and that we won’t be able to explore in depth all the related factors about EBD. But I hope that you now have some background information, context, and practice applying an EBD approach and I invite you to keep in contact with me and let me know if you are able to implement some of the concepts we learned about today and see how it really works in our profession.

  - Ultimately we touched on various issues about overarching topics of Value within the Interior Design Profession, Design Thinking and Design Culture.

**Slide 37: Questions**

- Thank everyone for their time and attention and their participation in today’s class.
Handout #1: Course Notes

Outline
- Introduction
- Part One
- Part Two
- Part Three
- Summary

Why EBD? (Bridge)
- Design is complex
- Literature
- Education
- Practice

What Did You Find?
- Introductions
- Information found on EBD
Handout #1: Course Notes

Objectives

- At the end of this course, participants will be able to:
  - List at least five methods for data collection related to interior design projects.
  - Discuss the advantages and drawbacks of employing an EBD approach.
  - Analyze current methods of working and designing through a reflective practice studio experience.
  - Evaluate the realities of applying an EBD approach through group discussion.
  - Construct a plan for applying an EBD approach in a design project.

Activity #1

- What is the Design Process?

Topic #1 Context

- EBD has roots in evidence-based medicine

- Current Applications:
  - Healthcare Design
  - Educational Design
  - Workplace Design

- Programming

- Terminology

- Resources
Handout #1: Course Notes

20/11/2012

Topic #2 Critical Thinking

• Systematic Process:
  o Define the Problem
  o Determine Appropriate Methods
  o Prioritize Methods for Gathering Data
  o Interpret Data and Form Logical Reasoning
  o Recognize Assumptions
  o Is the Data Relevant?
  o Make Accurate Judgments

• When would you use Critical Thinking?

Research (1)
  o Research
  o Gathering Information
Handout #1: Course Notes 20/11/2012

Research (1) - Methodology

Research (1) - Data Collection
  ○ Data Collection Resources

  ○ Measurable data

  ○ Create data

Activity #2
  ○ Worksheets

Research (2) - Analysis
  ○ Data Management

  ○ Analysis

  ○ Communication tools
Handout #1: Course Notes 20/11/2012

Research (3) - Synthesis
  o Synthesis
  o Communication Tools

Activity #3 – Design Process Re-Visited
  ● Discussion

  ● Programming

Studio Exercise
  ● Assignment:
    o Work with the project you brought to class and examine the elements of the design process that were used.
    o Reconstruct the project this time employing and EBD approach. For example, create a plan of action you or your design team might take to collect and analyze data.
    o Examine what changed between the two approaches.
    o Identify potential obstacles as well as benefits to employing this approach to your project.
    o The facilitator will visit each designer for one-on-one consultation.
    o If there’s time, share your ideas with the class at the end of the exercise.
Handout #1: Course Notes

Advantages and Disadvantages

Discussions
1. What research methods would be appropriate to gather data for this project? Explain why you think this method is appropriate.

   Design Problem: Dentist Office

   Possible Research Methods: Why?

2. What research methods would be appropriate to gather data for this project? Explain why you think this method is appropriate.

   Design Problem: Retail clothing store in a shopping mall.

   Possible Research Methods: Why?
Handout #2: Research Methods Worksheet 11/04/2012

3. What research methods would be appropriate to gather data for this project? Explain why you think this method is appropriate.

<table>
<thead>
<tr>
<th>Design Problem: Corporate Office for an oil and gas company.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible Research Methods:</td>
</tr>
</tbody>
</table>

4. Select a design problem you have had in the past, or are currently working on. What kind of research methods would be appropriate to gather data? Explain why you think this method is appropriate.

<table>
<thead>
<tr>
<th>Design Problem:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible Research Methods:</td>
</tr>
</tbody>
</table>
Handout #3: Studio Exercise

11/04/2012

This assignment is designed to allow the class participant to demonstrate their understanding of course material. The facilitator is interested in your interpretation and application of evidence-based design concepts.

Instructions:

Using the real project you have selected to bring to class, examine the elements of the design approach that was used, then re-construct the project this time employing and evidence-based design approach. Identify and create a plan of action you or your design team might take to collect and analyze data for this project.

Show your critical thinking skills by defining the problem and reflecting on the rationale for decision-making. Explain why you think the methods you chose are appropriate, identify the resources you will need. Examine what the differences are between the two processes. Identify potential obstacles as well as benefits to employing this approach to your project. Use the material discussed in class, the resource list provided, and any additional resources you find appropriate.

Present your work to the class.
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Level of Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Problem Definition</td>
<td>Description of the problem is minimal and limited to stating an idea.</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Description of the problem is greater in detail but lacks clarity and rationale.</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Description of the problem is thorough, clear, and concise. Rationale is explained.</td>
</tr>
<tr>
<td>Methods</td>
<td>Lacks evidence of a thought-out plan or rationale for decisions made.</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Description of a plan is evident but would be improved with greater detail and rationale.</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Description includes plan for data collection including resources, analysis and synthesis.</td>
</tr>
<tr>
<td>Comparison of the Previous and EBD Approaches</td>
<td>Description is limited to a list without evidence of rationale.</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comparison shows evidence of critical thinking but does not consider multiple outcomes.</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Comparison is thorough and shows evidence of critical thinking.</td>
</tr>
<tr>
<td>Potential Obstacles &amp; Benefits</td>
<td>Does not include discussion of potential obstacles or benefits.</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Description is limited to a list without evidence of rationale or evidence of critical thinking.</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Thorough list of obstacles and benefits, and shows evidence of critical thinking.</td>
</tr>
<tr>
<td>Presentation</td>
<td>Presentation does not show completion of each element.</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Presentation addressed each topic but would benefit from deeper analysis.</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Presentation shows thorough completion of assignment requirements.</td>
</tr>
</tbody>
</table>

Comments:
Handout #4: List of Resources and Further Reading 11/04/2012

Books:


Handout #4: List of Resources and Further Reading  

Articles:

Appendix B: Prototype v2.0

Handout #4: List of Resources and Further Reading 11/04/2012


Websites:

   InformeDesign is an online database free and available to everyone. Created and maintained by members at the University of Minnesota. Volunteers read research publications from a variety of sources and write summaries of the work. Designers can use these summaries as sources of information or find the original article for more details.

   The Centre for Health Design offers a certification program complete with a series of continuing education resources for credential maintenance.

   UK Magazine has published an article on evidence-based design form the point of view of and Interaction Designer based in Toronto.

   An article about applying an evidence-based design approach for healthcare projects found on Fast Company.

   The Calgary Public Library offers access to Academic Journals through their E-Library. Log in with an active library card.
Handout #4: List of Resources and Further Reading 11/04/2012

CEU's:

1. **Title:** Evidence-Based Design  
   **Presenter:** Denise Guerin PhD, FIDEC, ASID, IIDA  
   **Initiated:** 2007  
   **Available From:** www.informedesign.umn.edu  
   **Description:** This is a web-cast course available for purchase. The course focuses on introductory material on the vocabulary and methods used in conducting research as well as identifying some of the resources design practitioners can use to gather data. Upon viewing the one hour presentation participants are required to complete and submit a proficiency exam comprised of multiple choice and short-answer questions.

2. **Title:** Implementing Evidence-Based Design (EBD) as a Design Approach  
   **Presenter:** Caren S. Martin PhD, CID, FASID, IDEC  
   **Initiated:** 2011 (est.)  
   **Available From:** TBD  
   **Description:** This is a full day course presented in person with invitation to the course creator. It is designed to communicate a full university semester course in a condensed format with hands on exercises in class.
Handout #5: Terminology 11/04/2012

Evidence-Based Design – Combines the best practices from professional experience and project evaluation s with the knowledge from research. The approach that designers take to attain the highest quality of research that leads them to the best possible design solutions.

Built Environment – Human-made surroundings including but not limited to cities, neighbourhoods, buildings, interior spaces, industrial products, and the infrastructure and physical support systems. Other types of environments may include the Natural, Social, and Cultural Environments.

Critical Thinking – The process of thinking that questions assumptions. The process includes definition of the problem at hand, determining appropriate methods for gathering required data, interpretation of that data and synthesis of an informed judgment.

Information Gathering – A part of the research process, it is the collection of previously published facts and ideas. Information can be collected and compiled for analysis.

Research – Systematic inquiry to investigate or solve a problem in order to add to human knowledge.

Qualitative Research – A means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process involves emerging questions and procedures; collecting data in the participant’s setting; analyzing the data inductively, building from particulars to general themes; and making interpretations of the meaning of the data.

Quantitative Research – A means for testing objective theories by examining the relationship among variables which can be measured so that numbered data can be analyzed using statistical procedures.

Methodology – The overall strategy or path a researcher determines for the research project. It includes the methods for data collection and analysis.

Methods – The forms of data collection (such as Experiments, Observations, User Interviews), analysis and interpretation.

Empirical – Information acquired by means of observation or experimentation. Related to Scientific approaches to problems.

Normative Theories – Judgments of how things “ought to be”.

Positivism – Factual statements that attempt to describe reality.

Data – The information collected. Primary data is gained from direct contact with the data sources such as that collected from interviews, measurements, observations, and focus groups. Secondary data sources include archived information or census data.

Reliability – Looking for consistency in the test administration and scoring.

Validity – Strategies are used to demonstrate the accuracy of the researcher’s findings. Triangulation
Handout #5: Terminology 11/04/2012

looks for validity from different sources. Clarify researcher bias (what was the author’s motivation for doing the study?) Presence of counter-information: does the study identify the opposite point of view? Member-checking (what do your participants/user groups think about your findings?) and Peer-Review (what do your colleagues think about your findings?).

Analysis – The study of the parts and their interrelationships in making up a whole.³

Synthesis - A combination of the parts into a complex whole that forms something new.

Reflective Practice – Concept suggested by Donald A. Schon that much of a professional’s knowledge is developed through improvisation learned in practice.

Tacit Knowledge – Knowledge possessed by an individual “know-how” which cannot be easily communicated or taught such as riding a bicycle, habits, or culture.

Explicit Knowledge – Formal knowledge that is easy to communicate, can be articulated, codified and stored in certain media such as manuals or procedures.

A Priori Knowledge – Subjective intuition; includes emotion; sparks originality and creativity

Posteriori Knowledge – Accepted only on the basis of previously discovered verifiable evidence.

Body of Knowledge – A term used to represent the complete set of concepts, terms and activities that make up a professional domain, as defined by the relevant professional association.

References:

Appendix B: Prototype v2.0

EVIDENCE-BASED DESIGN: APPLYING RESEARCH IN PRACTICE

Nov 5th, 2012
Instructor: Cynthia Nomath

Agenda
- Introduction
- Part 1 - Context
- Part 2 - Applications
- Break
- Assignment
- Part 4 - Culture
- Summary

- Part 1 - Background
- Critical Thinking
- Research
- Part 2 - Working with the Data
- Assignment
- Part 3 - Case Discussions on Issues

Why EBD?
• Current Issues
  - Research & Body of Knowledge
  - Self-Regulation
• Bridging Education & Practice
  - Continuing Education
• Practical Learning
  - How do you learn?

Introductions
• Tell us about yourself.
• What did you find on EBD?

Learning Outcomes
• At the end of this course, participants will be able to:
  1. List at least the methods for data collection related to EBD.
  2. Outline the advantages and disadvantages of applying an EBD approach.
  3. Analyze current methods of working and designing through a reflective practice exercise.
  4. Discuss the rationale of applying an EBD approach through group discussions.
  5. Construct a plan for applying an EBD approach in a design project.

Activity #1
• The Design Process
  - Ask participants identify all the phases of the "typical" design process.
  - Identify some of the activities that normally occur in each phase.
  - Post for all to see and refer back to this throughout the class.
Part 1 - Context

- Context
  - Evidence-based medicine
    - Making diagnosis and decisions based on collected data (evidence)

Context

- Context
  - Current Applications:
    - Healthcare Design - client satisfaction
    - Educational Design - publications
  - Workflows: Design - variation; rules, hierarchy, level

Critical Thinking

- Critical Thinking
  - Define the Problem
  - Determine Appropriate Methods for Gathering Data (Evidence)
  - Synthesize, Analyze, Resources
  - Interpret Data
  - Recognize Assumptions
    - How do you make a judgment, can you support it with evidence?
    - Acknowledge opposing viewpoints.
    - Make Accurate Judgments
  - When would you use Critical Thinking?

Research

- Research
  - Adding something new to the Body of Knowledge
    - Process:
      - Methodology
      - Data Collection
      - Analysis
      - Synthesis

Research

- Methodology
  - Question:
    - What kind of data do you need?
    - How will you get it?
    - What resources do you have?
  - Background:
    - What you already know
  - Procedure:
    - Put gathering and analyzing data together
  - Product:
    - How will you present your findings?
Appendix B: Prototype v2.0

Research

- Synthesis
  - Putting It All Together
  - Create New Relationships
  - Innovation & Creativity
  - Design Solutions
  - The End Result of the Design Process
  - Something New & Original to add to the Greater Body of Knowledge

- Presentation:

Research

- Synthesis
  - Putting It All Together
  - Create New Relationships
  - Innovation & Creativity
  - Design Solutions
  - The End Result of the Design Process
  - Something New & Original to add to the Greater Body of Knowledge

- Final Reports
  - More Detailed Reports
  - Design Drawings
  - Preliminary Specifications

Activity #3

- Discussion
  - Look at our past design process
  - Where would these tasks fit in? Why?
  - Programming
  - How would we define (or re-define) Programming?
  - How might we approach the Programming Phase differently?

Self-study Exercise

- Assignment:
  - Work with the project team to plan and execute the elements of the design process that were used.
  - Reconstruct the project file employing an Evidence-based Design approach. For example, create a plan of action per or your design
  - Don't take too long.
  - 30 minutes

Part 3 - Discussions

- Advantages
- Disadvantages
Appendix B: Prototype v2.0

Discussion

Advantages
- Increased knowledge.
- Increased scope of services offered to clients.
- Increased complexity.
- Prior Opportunity Evaluations.
- Increased Value (perceived).

Disadvantages
- Increased time spent on a project (planning, data collection, design management, etc.)
- Increased client costs (due to increased time and resources).

Discussion

Real Life Implications
- Scope of Service
  - How would EBD affect or change the scope of services provided by Interior Designers?
  - Is this an advantage or a disadvantage?
  - How significant of a change would this be?

Discussion

Real Life Implications
- Time and Scheduling
  - How might an EBD approach affect how much time is spent on a project? Certain parts of a project?
  - Does this advance or hinder a design project?
  - Should EBD be applied to every project or only certain ones due to changes in time and scheduling?

Discussion

Real Life Implications
- Project Costs
  - How might project costs be affected by an EBD approach?
  - Is it an advantage or a disadvantage?
  - How significant of a change would this be?
  - Do you think clients would be willing to pay additional fees for additional services for standard services?

Discussion

Real Life Implications
- Value
  - Would EBD practice change the way the public views and understands the Interior Design profession?
  - Does having designers or staff that are experienced in research methods increase their value as employees?

Discussion

Real Life Implications
- Complexity
  - Designing is a complex process. There are many factors to consider and the implications of any design intervention in the built environment.
  - Does complexity influence design positively or negatively?
  - How might an EBD approach affect the complexity of a design project?
Thank You!

EVIDENCE-BASED DESIGN:
APPLYING RESEARCH IN PRACTICE

May 24, 2013
Instructor: Cynthia Nusseif
APPENDIX C: Recruitment Documents

The following pages include the documents developed to recruit research participants:

- University of Calgary Conjoint Faculties Research Ethics Board approval certificate
- Sample letter to Education Specialists
- IDA Newsletter advert (for course participants)
- Sample letter to course participants
- Information Letter to the Mount Royal Interior Design Alumni Committee
- Course evaluation questionnaire
- Consent form: Education Specialists
- Consent form: Course participants.
MEMO

CONJOINT FACULTIES RESEARCH ETHICS BOARD
c/o Research Services
Main Floor, Energy Resources Research Building
3512 - 33 Street N.W., Calgary, Alberta T2L 1Y7
Telephone: (403) 220-3782
Fax: (403) 289 0693
Email: csphr@ucalgary.ca
Friday, December 02, 2011

To: Cynthia E. Nemeth
Environmental Design, Faculty of

From: Dr. Kathleen Oberle, Chair
Conjoint Faculties Research Ethics Board (CFREB)

Re: Certification of Institutional Ethics Review: A Professional Education Approach to Evidence-Based Design in Interior Design Practice

The above named research protocol has been granted ethical approval by the Conjoint Faculties Research Ethics Board for the University of Calgary.

Enclosed are the original, and one copy, of a signed Certification of Institutional Ethics Review. Please make note of the conditions stated on the Certification. A copy has been sent to your supervisor as well as to the Chair of your Department/Faculty Research Ethics Committee. In the event the research is funded, you should notify the sponsor of the research and provide them with a copy for their records. The Conjoint Faculties Research Ethics Board will retain a copy of the clearance on your file.

Please note, an annual/progress/final report must be filed with the CFREB twelve months from the date on your ethics clearance. A form for this purpose has been created, and may be found on the "Ethics" website, http://www.ucalgary.ca/research/compliance/ethics/renewal

In closing let me take this opportunity to wish you the best of luck in your research endeavor.

Sincerely,

Chair, Conjoint Faculties Research Ethics Board

Enclosures (2)
cc: Chair, Department/Faculty Research Ethics Committee
    Supervisor: Mary-Ellen Tyler
CERTIFICATION OF INSTITUTIONAL ETHICS REVIEW

This is to certify that the Conjoint Faculties Research Ethics Board at the University of Calgary has examined the following research proposal and found the proposed research involving human subjects to be in accordance with University of Calgary Guidelines and the Tri-Council Policy Statement on "Ethical Conduct in Research Using Human Subjects". This form and accompanying letter constitute the Certification of Institutional Ethics Review.

File no: 7085
Applicant(s): Cynthia E. Nemeth
Department: Environmental Design, Faculty of
Project Title: A Professional Education Approach to Evidence-Based Design in Interior Design Practice
Sponsor (if applicable):

Restrictions:

This Certification is subject to the following conditions:

1. Approval is granted only for the project and purposes described in the application.
2. Any modifications to the authorized protocol must be submitted to the Chair, Conjoint Faculties Research Ethics Board for approval.
3. A progress report must be submitted 12 months from the date of this Certification, and should provide the expected completion date for the project.
4. Written notification must be sent to the Board when the project is complete or terminated.

Chair
Conjoint Faculties Research Ethics Board

Distribution: (1) Applicant, (2) Supervisor (if applicable), (3) Chair, Department/Faculty Research Ethics Committee, (4) Sponsor, (5) Conjoint Faculties Research Ethics Board (6) Research Services.
Attachment #1

Additional Information to Key Informants

Dear _____,

I am writing to you today to tell you about an opportunity to participate in a research study currently underway at the University of Calgary. Your name and email address is posted on the (University of Calgary) (Mount Royal University) (University of Manitoba) (University of Minnesota) website and this is how I came to send you this letter.

About the Researcher: I am a graduate student in the Faculty of Environmental Design and an interior design practitioner with 10 years experience in the commercial design community in Calgary. It was important to me to take my education to the next level where I can exercise my critical thinking skills and learn what it means to conduct research, and to gain knowledge. My academic work will enhance my professional skills and open doors to the interior design educational environment in the future.

The Research Project: One of the current issues in interior design is the topic of evidence-based design. This approach involves employing a systematic inquiry into a design topic to better understand the project ahead. To communicate elements of evidence-based design I have designed a continuing education course based on the IDCEC (Interior Design Continuing Education Council) “Presenter’s Guide”. The design of the course is also based on fundamental teaching and learning methods including Bloom’s Taxonomy, various learning styles, and the retention and application of learned content through active learning methods.

Key Informants: I am seeking persons with expertise in the fields of interior design practice, interior design education, post-secondary and/or adult education, and course design to provide feedback on the course I have designed.

Should you agree to participant as a Key Informant please call or respond to this e-mail by (date). I would like to send you the .pdf files of the course as described above. The time spent to review the material is left to your discretion. I would also like to schedule a meeting at a time and place of your convenience before (date) in which I would like to discuss your comments and feedback on the course material. This meeting should take approximately one hour depending on your availability.

Your Right to Withdraw: Signing the Informed Consent form (copy attached) indicates your choice to participate. Participation is completely voluntary and you are free to end your participation at any time without penalty. If you withdraw, please send a note to the researcher indicating your decision. I will not ask for a detailed explanation.

Confidentiality:
As stated in the Informed Consent form, you are given the option to allow your name to be included in the publication of the study, or if you wish to remain anonymous. In either case, your contact information will not be shared and all correspondence and discussion notes will be reviewed only by myself, (the researcher) and my academic supervisor.

Ethics Approval:
Please find attached a copy of the certificate granted by the University of Calgary Conjoint Health Research Ethics Board. This indicates that the procedures for contacting, recruiting and speaking with Key Informants and workshop participants is done in an ethical, professional and courteous manner.

Questions:
Please feel free to contact myself, Cynthia, with any questions or concerns you may have about your involvement with the research process. You may also contact my thesis supervisor, Dr. Mary-Ellen Tyler. Our contact information is included below.

If you are interested in participating in this research, please reply to this email before (date).

I look forward from hearing from you!

Sincerely,

[Signature]
Attachment #2

IDA – Newsletter Advert

Exciting new research in interior design is underway at the University of Calgary. I am a graduate student in the Faculty of Environmental Design and an interior design practitioner with 10 years experience in the commercial design community. My research involves the creation of a continuing education workshop in which design practitioners will have the opportunity to learn about evidence-based design in a casual and fun learning environment. Evidence-based design is a concept prevalent in the healthcare design industry but can be applied to all building types. It focuses on making informed design decisions based on gathering explicit evidence from research and practice. Whether you are already familiar with EBD or not, this research will focus on the learning and application of the concept in real-world design situations.

I am looking for Registered Members of the IDA in the Calgary area to participate in a test run of this new course. Your feedback could help provide a better understanding of how designers learn. The workshop will take place on [date] from [time] and a meal will be provided.

Please contact Cynthia Nemeth at [email] before [date] for more detailed information if you are interested in learning more about this research. Contacting me does not indicate your commitment to participate, participation is completely voluntary, and you are free to end your participation at any time without penalty. Please note, this course is not yet approved by the IDCEC and participants cannot obtain CEU credits at this time.
Attachment #3

Additional Information to Workshop Participants

Dear _____,

I am writing to you today to tell you about an opportunity to participate in a research study currently underway at the University of Calgary. Your name and email address is posted on the Interior Designers of Alberta website and this is how I came to send you this letter.

About the Researcher:
I am a graduate student in the Faculty of Environmental Design and an interior design practitioner with 30 years of experience in the commercial design community in Calgary. It was important to me to take my education to the next level where I can exercise my critical thinking skills and learn what it means to conduct research, and to gain knowledge. My academic work will enhance my professional skills and open doors to the interior design educational environment in the future.

The Research Project:
One of the current issues in interior design is the topic of evidence-based design. This approach involves employing a systematic inquiry into a design topic to better understand the project ahead. To communicate elements of evidence-based design, I have designed an educational course based on the IDCEC Interior Design Continuing Education Council "Presenter's Guide". The design of the course is also based on fundamental teaching and learning methods including Bloom’s Taxonomy, various learning styles, and the retention and application of learned content through active learning methods.

Participants:
I am looking for Registered Members of the IDA in the Calgary area to participate in a test run of this new course where your feedback will help to shape the future of professional learning. Defining and explaining the term "Interior Designer" can be challenging to readers of the research documentation so a clear and direct description is a key requirement. By asking for Registered Members I can ensure that qualified interior design professionals who have the combined education, experience, and examination will make up the participant group.

The workshop will take place on (date) from (time) and a meal will be provided.

Please note, this course is not yet approved by the IDCEC and participants cannot obtain CEU credits at this time.

Your Right to Withdraw:
Signing the Informed Consent form (copy attached) indicates your choice to participate. Participation is completely voluntary and you are free to end your participation at any time without penalty. If you withdraw, please send a note to the researcher indicating your decision. I will not ask for a detailed explanation.

Confidentiality:
As stated in the Informed Consent form, you are given the option to allow your name to be included in the publication of the study, or if you wish to remain anonymous. In either case, your contact information will not be shared and all correspondence and discussion notes will be reviewed only by myself, (the researcher) and my academic supervisor. You will be participating in a group class environment where you may know other interior design practitioners through professional work. Information about your company, projects or intellectual property will not be requested.

Ethics Approval:
Please find attached a copy of the certificate granted by the University of Calgary Conjoint Health Research Ethics Board. This indicates that the procedures for contacting, recruiting and speaking with Key Informants and workshop participants will be done in an ethical, professional and courteous manner.

Questions:
Please feel free to contact myself, Cynthia, with any questions or concerns you may have about your involvement with the research process. You may also contact my thesis supervisor, Dr. Mary-Ellen Tyler. Our contact information is included below.

If you are interested in participating in this research, please reply to this email before (date).

I look forward from hearing from you!

Sincerely,
October 12, 2012

To: Mount Royal University Interior Design Alumni Chapter

This is a request for volunteers to participate in an educational workshop as part of a graduate thesis project.

As a Mount Royal alumnus of the Interior Design program I would like to reach out to the members of the alumni chapter. After several years working in the local design community I decided to pursue graduate education at the University of Calgary. The Faculty of Environmental Design offers a thesis based program towards a Master of Environmental Design degree. My thesis work involves the creation of a continuing-education course to disseminate information on the concept of evidence-based design, an important topic in the current design literature. The course is based on the IDCEC format for CEU courses and includes learning activities directed toward a specific group of learners – interior design practitioners. What I need to do is demonstrate this course to a group of interior designers and ask for feedback on their experience. This feedback will help me to determine the relevancy of evidence-based design in the local design community, thus answering my research question.

The workshop will be held in November of this year, the date of which will be determined based on the preferences noted on the sign-up sheet. It will be held in the conference room of an architecture and design firm located in the south-west quadrant of the city.

For those who are interested, you will be formally contacted and provided with informative documents including a detailed explanation of my project, what you will be asked to do, a copy of approval I received from the University’s ethics committee, contact information for myself and my thesis supervisor, and other details.

If you choose to sign up on the attached sheet, this does not mean you have committed to the workshop. It will, however, give me an understanding of the number of interested people. Your participation is completely voluntary and you can withdraw at any time. If you are interested, please reply by Friday, October 26th, 2012.

Thank you for your time and consideration and please contact me with any questions.

Cynthia Nemeth BAID LEED-AP
Faculty of Environmental Design
University of Calgary
Phone:
Email:
Appendix C: Recruitment Documents

Instructor: Cynthia Nemeth
Contact: 

Evaluation Questionnaire  Date: ____________

Course Title: Evidence-Based Design: Applying Research in Interior Design Practice

Participant:

Please answer the questions below and write any additional comments you feel would most accurately convey your thoughts and perceptions in each category. Your identity is kept confidential and any reference to your feedback will be communicated by the participant number assigned to you. Your written answers will be typed by the researcher and a copy returned to you for your records. You will have the opportunity to follow up with the researcher on any additional comments you wish to make about your experience with this research. Your time, participation, and feedback is greatly appreciated.

<table>
<thead>
<tr>
<th>Part I - Overall Impressions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did the course deliver the information that you expected?</td>
</tr>
<tr>
<td>☐ Yes ☐ Somewhat ☐ No</td>
</tr>
<tr>
<td>Comments:</td>
</tr>
<tr>
<td>2. Do you feel you received an adequate introduction to evidence-based design?</td>
</tr>
<tr>
<td>☐ Yes ☐ Somewhat ☐ No</td>
</tr>
<tr>
<td>Comments:</td>
</tr>
<tr>
<td>3. Did the course deliver enough theoretical information?</td>
</tr>
<tr>
<td>☐ Yes ☐ Somewhat ☐ No</td>
</tr>
<tr>
<td>Comments:</td>
</tr>
<tr>
<td>4. Did the course deliver enough practical information?</td>
</tr>
<tr>
<td>☐ Yes ☐ Somewhat ☐ No</td>
</tr>
<tr>
<td>Comments:</td>
</tr>
</tbody>
</table>
Appendix C: Recruitment Documents

Evaluation Questionnaire

Instructor: Cynthia Nemeth
Contact: ____________________________

Date: ____________________________

5. Do you consider this course and intermediate level course?
   □ Yes  □ Not sure  □ No
   Comments: ____________________________

6. How would you compare this course to other professional development courses you may have taken?
   Comments: ____________________________

7. Would you recommend this course be submitted to the IDCEC and offered to Interior Design professionals for credit?
   □ Yes  □ With revisions  □ No
   Comments: ____________________________

8. What was the most interesting aspect(s) of the course?
   Comments: ____________________________

9. Which aspects of the course could use improvement?
   Comments: ____________________________

C:\Documents and Settings\CynthiaN\Desktop\THESIS\Questionnaires\Course Evaluation Form 2
### Evaluation Questionnaire

**Instructor:** Cynthia Nemeth  
**Contact:**

**Date:**

<table>
<thead>
<tr>
<th><strong>Part II - Course Delivery</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Was the length of the course reasonable for the amount of content delivered?</strong></td>
<td></td>
</tr>
<tr>
<td>☐ Yes</td>
<td>☐ Somewhat</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td><strong>2. Would you be likely to take this course if it were offered in a multiple-part format over several days?</strong></td>
<td></td>
</tr>
<tr>
<td>☐ Yes likely</td>
<td>☐ Maybe</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td><strong>3. Was the lecture portion helpful in learning the course material?</strong></td>
<td></td>
</tr>
<tr>
<td>☐ Very Helpful</td>
<td>☐ Somewhat Helpful</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td><strong>4. Was the visual presentation helpful in learning the course material?</strong></td>
<td></td>
</tr>
<tr>
<td>☐ Very Helpful</td>
<td>☐ Somewhat Helpful</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td><strong>5. Was the self-study portion of the class helpful in learning the course material?</strong></td>
<td></td>
</tr>
<tr>
<td>☐ Very Helpful</td>
<td>☐ Somewhat Helpful</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question</td>
</tr>
<tr>
<td>---</td>
<td>----------</td>
</tr>
<tr>
<td>6</td>
<td>Was the group discussion portion helpful in learning the course material?</td>
</tr>
<tr>
<td>7</td>
<td>Were the demonstrations helpful in learning the course material?</td>
</tr>
<tr>
<td>8</td>
<td>Was it helpful to have the course material before attending the course?</td>
</tr>
<tr>
<td>9</td>
<td>Do you think an online component should be incorporated into this course? If so, in what capacity would an online component be most useful?</td>
</tr>
<tr>
<td>10</td>
<td>Other than those provided, what other resources would you prefer to have to improve your learning?</td>
</tr>
</tbody>
</table>
### Part III - Relevancy of Course Topic in Practice

1. Would you be interested in learning more about evidence-based design? Why or why not?
   - [ ] Yes
   - [ ] Maybe
   - [ ] No
   
   **Comments:**

2. At this time, do you think that implementing an evidence-based design approach in your work is necessary?
   - [ ] Yes
   - [ ] Maybe
   - [ ] No
   
   **Comments:**

3. At this time, do you think that implementing an evidence-based design approach in your work is practical?
   - [ ] Yes
   - [ ] Maybe
   - [ ] No
   
   **Comments:**

4. In your opinion, would the local design community accept evidence-based design practices as part of interior design practice?
   - [ ] Yes
   - [ ] Maybe
   - [ ] No
   
   **Comments:**

5. Should evidence-based design concepts be taught to interior design students in preparation for practice?
   - [ ] Yes
   - [ ] Maybe
   - [ ] No
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Based on your experience, would clients be interested in information provided by an evidence-based design approach toward the design of their projects?</td>
<td>Yes, Maybe, No</td>
<td></td>
</tr>
<tr>
<td>7. In your opinion, would clients be willing to pay for additional (research) services such as any costs associated with evidence-based design?</td>
<td>Yes, Maybe, No</td>
<td></td>
</tr>
<tr>
<td>8. Would an evidence-based design approach be relevant in all design situations, or only specific design problems? If only in specific projects, what criteria would help determine if it should be used?</td>
<td>All, Some, None</td>
<td></td>
</tr>
<tr>
<td>9. Do you think evidence-based design is relevant in interior design practice?</td>
<td>Yes, Maybe, No</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix C: Recruitment Documents

#### Evaluation Questionnaire

**Instructor:** Cynthia Nemeth  
**Contact:**

**Date:**

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Based on your experience, would clients be interested in information provided by an evidence-based design approach toward the design of their projects?</td>
<td>Yes, Maybe, No</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. In your opinion, would clients be willing to pay for additional (research) services such as any costs associated with evidence-based design?</td>
<td>Yes, Maybe, No</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Would an evidence-based design approach be relevant in all design situations, or only specific design problems? If only in specific projects, what criteria would help determine if it should be used?</td>
<td>All, Some, None</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Do you think evidence-based design is relevant in interior design practice?</td>
<td>Yes, Maybe, No</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**
Name of Researcher, Faculty, Department, Telephone & Email:
Cynthia Nemeth, Faculty of Environmental Design, contact phone [Blank]
Supervisor:
Mary-Ellen Tyler PhD Faculty of Environmental Design contact phone [Blank]
Title of Project:
A Professional Education Approach to Evidence-Based Design in Interior Design Practice
Sponsor:
N/A

This consent form, a copy of which has been given to you, is only part of the process of informed consent. If you want more details about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study.

Purpose of the Study:
The purpose of this study is to investigate the most effective way of teaching new material on evidence-based design to professional interior design practitioners.

What Will I Be Asked To Do?
Participants will be asked to review the educational program created by the researcher. This will contain written documentation and a computer disk with a PowerPoint presentation. It should take approximately one hour to review the course, or as determined by the participant. Upon completion of his or her review, the informant will meet with the researcher to discuss their views and perspectives on the work. This interview will be scheduled for approximately one hour in duration.

The individual's participation is completely voluntary and he or she may refuse to participate in all or part of the process. Participants may withdraw from the study at any time without penalty. Confidentiality and privacy will be strictly observed to avoid any risk to the participants.

What Type of Personal Information Will Be Collected?
Should you agree to participate, you will be asked to provide your name, type and years of experience only for the purposes of describing the general demographics of the sample group. Your personal identification may be published unless you indicate you do not wish to remain anonymous.

There is several options for you to consider if you decide to take part in this research. You can choose all, some or none of them. Please put a check mark on the corresponding line(s) that grants me your permission to:

I grant permission to be audio taped: Yes: ___ No: ___
I grant permission to be videotaped: Yes: ___ No: ___
I wish to remain anonymous: Yes: ___ No: ___
You may quote me and use my name: Yes: ___ No: ___
You may quote me but not use my name: Yes: ___ No: ___
Are there Risks or Benefits if I Participate?

There are no reasonably foreseeable risks, harms, costs or inconveniences to the participant.

What Happens to the Information I Provide?

Participation is completely voluntary. You are free to discontinue participation at any time during the study. No one except the researcher and her supervisor will be allowed to hear the audio-taped interview. The paperwork and audio tapes are kept in a locked cabinet only accessible by the researcher and her supervisor. All data will be stored for three years on a computer disk, at which time, it will be permanently erased. For participants who decide to withdraw from the study, your data will not be used in the evaluation and publication of the study, and any information collected from you will also be kept anonymous, be kept in a locked cabinet until transferred to computer disk, and destroyed after three years.

Signatures (written consent)

Your signature on this form indicates that you 1) understand to your satisfaction the information provided to you about your participation in this research project, and 2) agree to participate as a research subject.

In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from this research project at any time. You should feel free to ask for clarification or new information throughout your participation.

Participant’s Name: (please print) ________________________________

Participant’s Signature ___________________________ Date: ____________

Researcher’s Name: (please print) ________________________________

Researcher’s Signature ___________________________ Date: ____________

Questions/Concerns

If you have any further questions or want clarification regarding this research and/or your participation, please contact:

Ms Cynthia Nemeth,
Faculty of Environmental Design
cenemeth@ucalgary.ca

And Supervisor: Mary-Ellen Tyler, faculty of Environmental Design

If you have any concerns about the way you’ve been treated as a participant, please contact the Senior Ethics Resource Officer, Research Services Office, University of Calgary at (403) 220-3782; email ethics@ucalgary.ca

A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form.
<table>
<thead>
<tr>
<th><strong>Name of Researcher, Faculty, Department, Telephone &amp; Email:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cynthia Nemeth, Faculty of Environmental Design, contact phone</td>
</tr>
</tbody>
</table>

**Supervisor:**

Mary-Ellen Tyler PhD Faculty of Environmental Design contact phone

**Title of Project:**

A Professional Education Approach to Evidence-Based Design in Interior Design Practice

**Sponsor:**

N/A

This consent form, a copy of which has been given to you, is only part of the process of informed consent. If you want more details about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study.

**Purpose of the Study:**

The purpose of this study is to investigate the most effective way of teaching new material on Evidence-Based Design to interior design practitioners. Invited participants were selected from the database of registered interior designers from the Interior Designer of Alberta website as these individuals have shown a commitment to the profession of Interior Design by passing the NCIDQ exam and subsequently seeking membership with the local governing authority.

**What Will I Be Asked To Do?**

In the first part of the program participants will be invited to a conference-style environment and asked to participate in a 1-2 hour long lesson. An audio/visual presentation will be accompanied by lecture and learning activities designed to encourage class participation. Participants will be asked to participate in group discussions, taking notes, and sharing personal work experiences/anecdotes as appropriate to the course content. At the end of part one, participants will be asked to complete a written questionnaire.

In the second part of the program participants will be asked to spend approximately one hour engaged in self-study while completing a homework assignment designed to allow the participant to apply the skills and concepts learned in Part One. The researcher will then schedule, within the following 2 weeks, a one-on-one follow up tutorial with each participant to review the homework assignment and to debrief their experience with the program. This debrief discussion will consist of an interview of approximately 30-60 minutes.

The individual's participation is completely voluntary and he/she may refuse to participate in all or part of the program. Participants may withdraw from the study at any time without penalty. Confidentiality and privacy will be strictly observed to avoid any risk to the participants.

**What Type of Personal Information Will Be Collected?**

Should you agree to participate, you will be asked to provide your name, gender, and years of experience only for the purposes of describing the general demographics of the sample group. Your personal identification will remain with the researcher and not published in the thesis or supporting documentation.
Appendix C: Recruitment Documents

There are several options for you to consider if you decide to take part in this research. You can choose all, some or none of them. Please put a check mark on the corresponding line(s) that grants me your permission to:

I grant permission to be audio taped:       Yes: ___  No: ___
I grant permission to be videotaped:       Yes: ___  No: ___
I wish to remain anonymous:         Yes: ___  No: ___
You may quote me and use my name:       Yes: ___  No: ___
You may quote me but not use my name:   Yes: ___  No: ___

Are there Risks or Benefits if I Participate?

There are no reasonably foreseeable risks, harms, costs or inconveniences to the participant.

Participants will not be paid for their time but will be provided with a meal/snacks as part of the incentive for their participation.

What Happens to the Information I Provide?

Participation is completely voluntary, anonymous and confidential. You are free to discontinue participation at any time during the study. No one except the researcher and her supervisor will be allowed to see or hear any of the answers to the questionnaire or the interview tape. Your names are included on the questionnaire only for the purposes of contacting you for follow-up purposes. Only group information will be summarized for any presentation or publication of results. Your name will never appear in publication. The questionnaires are kept in a locked cabinet only accessible by the researcher and her supervisor. The anonymous data will be stored for three years on a computer disk, at which time, it will be permanently erased. For participants who decide to withdraw from the study, your data will not be used in the evaluation and publication of the study, and any information collected from you will also be kept anonymous, be kept in a locked cabinet until transferred to computer disk, and destroyed after three years.

Signatures (written consent)

Your signature on this form indicates that you 1) understand to your satisfaction the information provided to you about your participation in this research project, and 2) agree to participate as a research subject.

In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from this research project at any time. You should feel free to ask for clarification or new information throughout your participation.

Participant’s Name: (please print) _______________________________  Date: __________________

Participant’s Signature ___________________________________________  Date: ____________

Researcher’s Name: (please print) ________________________________

Researcher’s Signature: _________________________________________  Date: ____________
Questions/Concerns

If you have any further questions or want clarification regarding this research and/or your participation, please contact:

Ms Cynthia Nemeth,  
Faculty of Environmental Design  
nemeth@ucalgary.ca

And Supervisor: Mary-Ellen Tyler, faculty of Environmental Design

If you have any concerns about the way you’ve been treated as a participant, please contact the Senior Ethics Resource Officer, Research Services Office, University of Calgary at (403) 220-3782; email

A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form.
APPENDIX D:
SUMMARY OF FEEDBACK FROM DEMONSTRATION PARTICIPANTS

The following pages include the revised presentation slides and pre-amble which was demonstrated to the group of ID practitioners.
## Appendix D: Summary of Feedback from Demonstration Participants

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>Maybe</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the course deliver the information that you expected?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel you received an adequate introduction to evidence-based design?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did the course deliver enough theoretical information?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did the course deliver enough practical information?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you consider this course an intermediate level course?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How would you compare this course to other professional development courses?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would you recommend this course be submitted to the IDCEC and offered to Interior Design professionals for credit?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What was the most interesting aspect(s) of the course?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Which aspects of the course could use improvements?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was the length of the course reasonable for the amount of content delivered?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would you be likely to take this course if it were offered in a multiple-part format over several days?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was the lecture portion helpful in learning the course material?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was the visual presentation helpful in learning the course material?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was the self-study portion of the class helpful in learning the course material?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was the group discussion portion helpful in learning the course material?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were the demonstrations helpful in learning the course material?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was it helpful to have the course material before attending the course?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think an online component should be incorporated into this course?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other than those provided, what other resources would you prefer to have to improve your learning?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would you be interested in learning more about evidence-based design? Why or why not?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At this time, do you think that implementing an evidence-based design approach in your work is necessary?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At this time, do you think that implementing an evidence-based design approach in your work is practical?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In your opinion, would the local design community accept evidence-based design practices as part of interior design practice?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Should evidence-based design concepts be taught to interior design students in preparation for practice?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on your experience, would clients be interested in information provided by an evidence-based design approach toward the design of their projects?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In your opinion, would clients be willing to pay for additional (research) services such as any costs associated with evidence-based design?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would an evidence-based design approach be relevant in all design situations, or only specific design problems? If so in specific projects, what criteria would help determine if it should be used?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think evidence-based design is relevant in interior design practice?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Did the course deliver the information that you expected?</td>
<td>wider application</td>
<td>more time required</td>
<td>interesting to see EBD outside of healthcare</td>
</tr>
<tr>
<td>Do you feel you received an adequate introduction to evidence-based design?</td>
<td>discussion on various practice</td>
<td>introduce others to think differently</td>
<td>more detailed example</td>
</tr>
<tr>
<td>Did the course deliver enough theoretical information?</td>
<td>well balanced</td>
<td>yes</td>
<td>more time for collaboration</td>
</tr>
<tr>
<td>Did the course deliver enough practical information?</td>
<td>discussion most valuable</td>
<td>more time required</td>
<td>relate the practical to real life situations in more detail</td>
</tr>
<tr>
<td>Do you consider this course an intermediate level course?</td>
<td>more introductory</td>
<td>in line with the requirements</td>
<td>more senior</td>
</tr>
<tr>
<td>How would you compare this course to other professional development courses?</td>
<td>excellent; others are too basic or targeted to a specific group</td>
<td>requires more polish through practice</td>
<td>good to challenge designers to apply past experience</td>
</tr>
<tr>
<td>Would you recommend this course be submitted to the IDECEC and offered to Interior Design professionals for credit?</td>
<td>for professionals</td>
<td>comparable and organized</td>
<td>flush out definition more</td>
</tr>
<tr>
<td>What was the most interesting aspect(s) of the course?</td>
<td>broader aspects</td>
<td>resource materials to look into deeper</td>
<td>studio assignment and discussions</td>
</tr>
<tr>
<td>Which aspects of the course could use improvement?</td>
<td>more case studies</td>
<td>pace; i.e., curtai discussion</td>
<td>more visual learning</td>
</tr>
<tr>
<td>Was the length of the course reasonable for the amount of content delivered?</td>
<td>longer course desired</td>
<td>no</td>
<td>need more time</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Would you be likely to take this course if it were offered in a multiple-part format over several days?</td>
<td>yes</td>
<td>very helpful</td>
<td>time to talk/collaborate</td>
</tr>
<tr>
<td>Was the lecture portion helpful in learning the course material?</td>
<td>good approach</td>
<td>very helpful</td>
<td>don’t apologize for lecture style</td>
</tr>
<tr>
<td>Was the visual presentation helpful in learning the course material?</td>
<td>ok, but paid more attention to speakers</td>
<td>very helpful</td>
<td>more visuals</td>
</tr>
<tr>
<td>Was the self-study portion of the class helpful in learning the course material?</td>
<td>would prefer case study provided</td>
<td>not enough time</td>
<td>group study is better</td>
</tr>
<tr>
<td>Was the group discussion portion helpful in learning the course material?</td>
<td>best part</td>
<td>very helpful</td>
<td>very helpful</td>
</tr>
<tr>
<td>Were the demonstrations helpful in learning the course material?</td>
<td>very helpful</td>
<td>n/a; no detailed demonstration</td>
<td>more demos</td>
</tr>
<tr>
<td>Was it helpful to have the course material before attending the course?</td>
<td>background only; not necessary</td>
<td>somewhat helpful</td>
<td>liked gathering info on EBD; good expectations</td>
</tr>
<tr>
<td>Do you think an online component should be incorporated into this course? If so, in what capacity would an online component be most useful?</td>
<td>maybe</td>
<td>able to check out resources online</td>
<td>no</td>
</tr>
<tr>
<td>Other than those provided, what other resources would you prefer to have to improve your learning?</td>
<td>case studies and small group discussions</td>
<td>examples of others’ project processes</td>
<td>send out links prior to course</td>
</tr>
</tbody>
</table>
### Relevancy of Course Topic in Practice

#### Would you be interested in learning more about evidence-based design? Why or why not?

- **Yes**
- **No**
- **Maybe**

**Responses:**
- More information on how to apply it
- Yes
- How EBD applies to other facets and industries
- Yes
- To reinforce some processes become habit
- Yes
- I love to learn more about methods of application and circumstances surrounding results
- Gathering feedback from own projects
- Yes
- I would like to know more about how it could be a benefit to me and my clients

#### At this time, do you think that implementing an evidence-based design approach in your work is necessary?

- **Yes**
- **No**
- **Maybe**

**Responses:**
- Already do it
- More aware
- Try to consider but more focus
- We already do for education design
- Already use it in "good" design
- Puts a name to a concept
- Help to make more orderly process
- An honest alternative to hit-and-miss
- EBD should essentially be good design practice

#### At this time, do you think that implementing an evidence-based design approach in your work is practical?

- **Yes**
- **No**
- **Maybe**

**Responses:**
- Encouraging our team to implement it
- Needs to be scalable to projects
- Yes
- This is the ultimate goal for each project
- Yes
- Should be a part of program for every user
- Application may very based on time or budget
- May be very client specific

#### In your opinion, would the local design community accept evidence-based design practices as part of interior design practice?

- **Yes**
- **No**
- **Maybe**

**Responses:**
- Already do it
- Maybe
- Yes
- We already do in some form
- Great to formalize
- Exists, not identified and talked about
- I never worked anywhere where it was missing entirely
- I think it is used but perhaps the term isn't expressed as often as it should be
- More relevant examples for students to grasp the concept, i.e. why it works

#### Should evidence-based design concepts be taught to interior design students in preparation for practice?

- **Yes**
- **No**
- **Maybe**

**Responses:**
- Scalability should be discussed
- Use as a tool, not fanatical
- Open to other processes
- Good review
- Absolutely
- Yes
- It's the only moral thing to do.

#### Based on your experience, would clients be interested in information provided by an evidence-based design approach toward the design of their projects?

- **Yes**
- **No**
- **Maybe**

**Responses:**
- Depends on level of client interest and engagement
- Depends on the client
- My clients are academic, so yes
- Depends on the client and size of project
- My clients are academic, so yes
- Depends on size and type of project
- Results of successful application could/should encourage deeper level of participation
- It should be embedded in the fee structure and part of design planning

#### In your opinion, would clients be willing to pay for additional (research) services such as any costs associated with evidence-based design?

- **Yes**
- **No**
- **Maybe**

**Responses:**
- More awareness
- Complexity of project
- Private/public
- All design situations
- All in theory
- Not all clients, project types, or budgets will allow for exploration required
- When a reality change is necessary
- When client needs extra convincing
- All design situations but not all interactions
- Previous examples and scenarios would help encourage practitioners as to why it should be used

#### Would an evidence-based design approach be relevant in all design situations, or only specific design problems? If on in specific projects, what criteria would help determine if it should be used?

- **Yes**
- **No**
- **Maybe**

**Responses:**
- Only in certain instances
- Type
- Size
- Client awareness
- Complexity of project
- Private/public
- All design situations
- All in theory
- Not all clients, project types, or budgets will allow for exploration required
- When a reality change is necessary
- When client needs extra convincing
- All design situations but not all interactions
- Previous examples and scenarios would help encourage practitioners as to why it should be used

#### Do you think evidence-based design is relevant in interior design practice?

- **Yes**
- **No**
- **Maybe**

**Responses:**
- Already practice to some degree
- Yes
- Most definitive design that will shape the future
- Think it is critical
- See all of above
- Yes