The 'bright spot':
Closing the knowledge gap
with Inclusive Design training

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Abstract

Training alone is not enough to counter digital exclusion but it can create a shared understanding of inclusion in the design process. The aim of this work was to close the knowledge gap that exists amongst design practitioners of digital products and services. The study was comprised of an e-learning prototype nested between a pre- and post-evaluation questionnaire. An iterative, participatory design method was used to develop the survey questions and the Inclusive Design training module. Study results found a widespread absence of professional training amongst designers. Designers agreed that inclusion of diverse users in the design process makes it better for all users, not just persons with disabilities. Although a common understanding of inclusion in the design process was reached, reported examples of inclusion suggest more work is required to help designers understand how to 'go about' designing for inclusion.

Acknowledgments

Dedication

To my children, Shea and Liam,

I hope the process of learning inspires you to reach

for the stars and embrace change, even when change is hard.

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1   Introduction

An inclusively designed product or service is easier for everyone to use, not just persons with disabilities. Unfortunately, inclusion of people with diverse abilities in the design process is not keeping pace with an aging, culturally diverse Canadian population—where one in four Ontario residents are born outside the country and one in seven Ontarians are living with a disability (The Ontario Ministry of Economic Development, Trade and Employment, 2013). Despite more than 20 years of research in accessible computing, Wobbrock, Kane, Gajos, Harada & Froehlich (2012) found that user interfaces still pose access challenges.

Today, the Internet is a global, interconnected network of information, applications, communities, and more. In this regard, it is unacceptable that individuals are excluded from accessing products and services that contribute to their well-being and independence (Mieczakowski, Hessey & Clarkson, 2013). Designing digital products and services that embrace the needs and capabilities of different users makes good social and business sense. The Ontario Government of Canada estimates that in the next 20 years, an aging population and people

with disabilities will generate 40% of total income in Ontario—$536[1] billion in potential revenue.

Designing for people in all their variability requires the inclusion of "diverse user groups in the development process" (Joost & Bieling, 2012, p. 9). According to Joost & Bieling (2012, p. 9), broadening a designer's perspective of end users beyond 'normality' "does not only serve an idea of inclusive design and accessibility but can rather be seen as a source of innovation". Unfortunately today, most designers have "no previous experiences in designing for people with disabilities" (Abascal & Nicolle, 2005, p. 496).

For the purpose of this research the term designer in this study is meant in the broad sense and refers to persons who contribute to the design of digital products and services. Examples of designers include human factors engineers, user experience (UX) designers, information architects (IA), interaction designers (ID), graphic designers, content strategists, usability specialists, user researchers and more. The term designer is interchanged with design practitioner and HCI professional.

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[1] http://www.mcss.gov.on.ca/documents/en/mcss/accessibility/Ont_InfoGraph-EN.pdf

1.1   Inclusive Design: Practice Knowledge Gap

To identify design knowledge gaps in accessibility, Putnam et al. (2012) explored how UX and HCI professionals considered accessibility in creating information and communication technologies (ICTs). Despite survey respondents reporting accessibility as being important or very important in their work, when considerations for accessibility were discussed, Putnam et al. (2012) found practical application in the design process was limited in scope to primarily people with visual disabilities. This narrow view of accessibility indicates a gap in knowledge about the spectrum of capabilities to consider when designing inclusively for a diverse group of people.

Further to lack of scope, Putnam et al. (2012) found decisions about accessibility were not in respondents' control. UX and HCI professionals (26%, n=34 of 185) indicated their considerations for accessibility were a requirement because of laws, guidelines or organizational practices. The remaining respondents, while aware of accessibility concerns, reported "lack of control" over how accessibility was considered in their workplace a barrier to practical application. The limited scope and lack of control discussed by Putnam et al. (2012) are themes that match my own observations as a veteran design practitioner.

1.2   Inclusive Design: Academic Program Gap

Abascal & Nicolle (2005, p. 496) noted that although professionals may have a desire to design more inclusively, "they are likely to be struggling with exactly how to go about it". More widely available training and tools are required to demonstrate how Inclusive Design is relevant to different groups of end users and product types (Goodman, Don, Langdon & Clarkson, 2006). Putnam et al. (2012, p. 93) agree that a better understanding about accessibility has "implications for academic programs". The need for education to close the knowledge gap is undisputed.

A challenge with incorporating inclusive design into academic program curriculums is that design practitioners come from diverse backgrounds where UX-related programs lack standardization of inclusion and accessibility courses as part of curriculum. A review of Canadian educational institutions listed by The Information Architecture Institute[2] as having IA related Degree and Certificate Programs, revealed that although several programs include research courses, only one institution, University of Alberta, included accessibility as part of the Information Architecture[3] course.

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[2] http://iainstitute.org/en/learn/education/schools_teaching_ia.php
[3] http://www.arteccom.com.br/cursos/index.php

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The exception was OCAD University's Inclusive Design (MDES) program[4], where inclusion was embedded into the fabric of the program.

A survey of UX professionals conducted by Farrell & Nielsen (2014, p. 8) confirmed the diversity of design practitioners' educational backgrounds: "There's no single degree to define the field: design, psychology, and communication were the most common major areas". Out of the diverse education programs reported by Farrell & Nielsen (2014), Inclusive Design was not mentioned although Accessibility (n=2 of 963) and Compassion (n=1 of 963) was on the courses identified by respondents. As stated by Putnam et al. (2012, p. 93), "in absence of an association with geographic location and job titles" understanding of inclusion in the design process would require "a wide range of education and training programs".

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[4] http://www.ocadu.ca/graduate-studies/programs/inclusive-design

1.3   Bridging the Gap with Professional Training

This research proposes to counter digital exclusion with an Inclusive Design training module to close the knowledge gap. The module could be delivered as standalone training or as part of a Design training program for new employees. The objective of the training module is to educate design practitioners on Inclusive Design and create a common understanding of inclusion in the design process. The research will show why employee training is the 'bright spot' to closing the knowledge gap and creating a shared understanding of Inclusive Design amongst designers.

2   Training as the 'Bright Spot'

Inclusive design aims to remove barriers that create undue effort and separation. Fletcher (2006) said this, in reference to making physical places that everyone can use. Meeting access needs and allowing users to participate equally, confidently and independently is a design principle that transcends to the digital space. Designing with inclusion in mind "combines good design and usability with accessibility to create inclusive design" (Quesenbery, 2014, para. 1).

People face exclusion in many ways—situational, social, economic, cognitive, physical, age, gender and other forms of human difference (Council, 2010). The Inclusive Design Research Centre defines inclusive design as design that is inclusive of the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference (Inclusive Design Research Centre OCAD University, 2013). "Good design should reflect the diversity of people who use it and not impose barriers of any kind" (Fletcher, 2006, p. 5). For change to occur, designers need to start thinking differently about the people at the center of their design. User-centered design (UCD) [5], also called human-centered design HCD, is a process followed by many organizations whereby the user is at the

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[5] http://www.w3.org/WAI/redesign/ucd

forefront of design thinking. The process starts with the identification of the people who will use the product, the context in which they will use the product, and their needs while interacting with the product (or service).

Considering UCD and HCD already take into account the needs of people, it is a matter of shifting the designer perspective beyond 'the norm' of typical users to ensure the inclusion of diverse users. The key to shifting the designer perspective hinges on incorporating inclusive thinking into the design methodology practiced by organizations. That is "incorporating accessibility and usability into corporate culture and processes" (Bergel, Chadwick-Dias & Tullis, 2005, p. 23).

To make change easy and sustainable, Heath & Heath (2010) present a framework for individual, organizational and societal change that is based on decades of scientific research. For them, what looks like resistance, is often a lack of clarity, direction and tools. In this regard, according to Heath & Heath (2010), you need to "direct the rider" our rational side, "motivate the elephant" our emotional side and "shape the path to change" the environment (Heath & Heath, 2010, p. 17).

Closing the knowledge gap does not necessarily require the adoption of new design methodology but rather training on how to think inclusively within existing UCD and HCD frameworks.

2.1   Directing a Change in Design Practice

A number of approaches to accessible computing already exist. The methods range from the familiar, universal design and design for all, to more recent and less familiar approaches such as ability-based design, user-sensitive design and empathic design. All methods seek to engage the user in some shape or form during the design process, which means there is no need to develop a new construct.

In this research it is proposed that closing the knowledge gap and thereby shifting design thinking can be accomplished through Inclusive Design training. The research suggests that training would be positioned within context of the design methodology practiced by designers. Heath & Heath (2010) refer to this as finding the `bright spot'. Rather than starting from scratch, change is positioned within the context of the familiar, thereby reducing the size of change from abstract to specific. Positioning Inclusive Design training within existing practices and processes makes inclusion attainable.

The training module scripts the critical moves, which Heath & Heath (2010) describe as the specific behavior that requires changing. Change is easier when you point to the destination (Heath & Heath, 2010). In other words, change is easier when you know the 'why'. Designers need to consider the 'why' so they can relate the concept of inclusion to the products and services they create for their companies.

A study by Goodman, Don, Langdon & Clarkson (2006) found the key drivers to inclusive design within organizations were demographic and consumer trends, social responsibility, and brand enhancement. Other key drivers were the opportunity for innovation and differentiation as well as Inclusive Design's potential to increase customer satisfaction. The Norwegian Design Council (2010) outlined six case studies from across different industries to demonstrate how inclusive thinking has met with success. Inclusion of business success stories in the training module would demonstrate to designers the business case for inclusive design and provide the 'why' behind the destination.

Furthermore, the Norwegian Design Council (2010) also noted that many prejudices and preconceptions about inclusive design exist. These prejudices and preconceptions are primarily due to a lack of understanding and oversimplification. Therefore, for the purposes of this research and in order to meet the objective of closing the

knowledge gap, it was necessary to address the myths and

misconceptions of design practitioners to ensure they were 'busted'.

The training module included an explanation of Inclusive Design (the

'what') with "myth busting" content that was sourced from the

Norwegian Design Council website[6].

2.2   Motivating Change Through Stories

According to Heath & Heath (2010), knowing something, is not enough

to initiate change; instead, it is necessary to make people feel

something. To urge the elephant—our emotional side into action,

designers require motivation to change. A transformation from within

the designer must occur for empathy and understanding to develop

(McDonagh, 2008). In this regard, it was imperative that the Inclusive

Design training module included content that helped designers

understand the meaning of inclusion in the design process.

There is a widespread recognition in UCD, of the need for "designers to

gain empathy with users for whom they are designing" (Kouprie &

Visser, 2009). The motivation to change lies in leveraging UCD

methods that generate the most empathy amongst designers. Chosen

methods need to provide an understanding of people "beyond the

functional in order to develop more appropriate design outcomes"

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[6] http://inclusivedesign.no

(McDonagh, 2008, p. 1). That is, a designer's empathic horizon must be more inclusive of a wide range of capabilities and devoid of misconceptions. McDonagh (2008) broke down misconceptions with a video story about a group of quadriplegic rugby players. Stories provided context that enabled the designer to create meaning from the user's experience and aspirations (McDonagh, 2008).

In addition to watching the video, McDonagh (2008) had students spend at least two hours in a wheelchair before beginning to design. This enabled a shift in design thinking through the expansion of the design student's empathic horizon. Knowing the user in their lived and felt life involves empathy to understand what it feels like to be that person from their perspective (Wright & McCarthy, 2008).

Another study by Goodman, Langdon & Clarkson (2007), confirmed designers use a range of sources including their own experiences and imaginations during the design process. The study, which drew on designers' practical design experience and observations, found that designers prefer user stories and like concise, "manageable nuggets of video footage" Goodman et al., 2007, p. 4). Design practitioners find it easier to consider inclusion within the design process if the information helping them to understand inclusive design is provided in a tangible,

stimulating and engaging way (Goodman et al., 2007).

Heath and Heath (2010) refer to this as shrinking the change so as not to spook the elephant. Ideally, people should be the first point of reference, and therefore, stories support designers in learning about people, culture and context. As Goodman et al. (2007, p. 9) state, a video clip of "real users help to emphasize the reality of situations", therefore, stories demonstrating inclusive design was a key component of the training module.

2.3   Shaping the Path of Change

Change requires tweaking the environment so when the situation changes, the behavior changes. To help designers understand the situation better, Papadopoulos, Pearson & Green (2012) (as cited in Papadopoulos et al., 2007) use accessibility simulators. Simulators promote better understanding of accessibility barriers to instill some empathy, and help develop self-confidence in supporting people with disabilities.

Goodman et al. (2007) found simulators to be an effective method of communicating capability loss and helping designers sympathize with users for an internalized understanding. It should be noted that Papadopoulos et al. (2012) stressed simulation activities do not simulate the disability itself. Instead, simulators demonstrate the

effect a capability loss may have on a person's interactions with the computer. That is, simulations raise accessibility awareness and provide an understanding of the impact of specific impairments. Given this, the Inclusive Design training module was designed to capture the shift of focus from drivers of accessibility, such as standards and accessibility guidelines to individual users with a range of abilities.

The authors of *Switch* Heath & Heath (2010) state that for change to be sustainable, behaviour must become habitual. While designer understanding of inclusion in the design process may improve as an outcome of the Inclusive Design training module, learning alone does not ensure practical application. To support practical application of the learning outcomes, post-learning support is required. Papadopoulos et al. (2012, p. 7) suggest "communities of practice": a group of people who collaborate and share concerns or passions. The framework developed by Papadopoulos et al. (2012) includes a focus on increasing understanding and awareness while supporting educators in their role. Therefore, in addition to simulators, tools such as checklists and personas representing a range of capabilities were incorporated into the training module to support designers. The tools served to increase understanding and support the application of inclusion in the design process after having completed the training module.

Reflection is important when change is introduced. Evaluating best

practice and challenging the norms, while considering personal values

and assumptions (Tan et al., 2011) helps us interpret and frame our

learning. Papadopoulos et al. (2012) demonstrated this in their

research when they forced teachers to examine their work with a

critical eye to improvement, which is what was expected of the

designers upon completion of the training module. Questions in a post-

training survey were designed to provide designers with an opportunity

to reflect on what they learned. A specific question asking for

suggestions on how to enhance the training module would

demonstrate an applied understanding of their learning.

3   Training Module Design

The purpose of the training as outlined in Figure 1 is to influence the adoption of inclusive design thinking by designers of digital products and services. Inclusion of diverse users in the design process cannot occur without a shared understanding of inclusion in the design process. A shift in thinking needs to occur and designers need to move beyond thinking in terms of 'the norm' to thinking in terms of a full range of human abilities. Closing the knowledge gap through Inclusive Design training is the path to change.
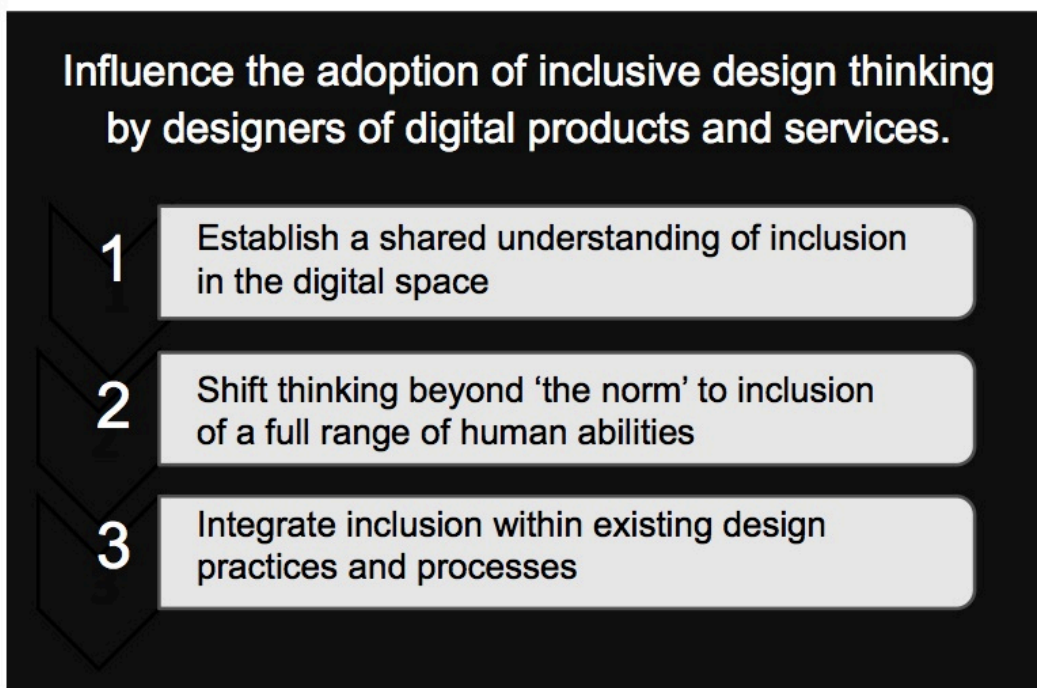
Figure 1: Training Module Objectives

Inclusive Design training was conceived from the design practice knowledge and academic education gap that was discussed in the Introduction of this paper, along with the principles for change that were outlined by Heath & Heath (2010). My experience as an e-learning system designer informed the navigation system, while previous research on user stories as the catalyst to designers' empathy and understanding informed the content.

The training module advanced from concept to prototype over five design iterations that engaged designers in the process. Test 1 of the prototype was an outline of the proposed training framework. In subsequent iterations, the prototype became more defined until the framework was filled with a navigation system and content. To measure learning outcomes and confirm the existence of an education gap, a pre- and post-training evaluation questionnaire was developed at the same time as the prototype. The intention was to deploy the prototype nested between the pre and post-survey to designers in my social network.

3.1 Iterative Design Method

Five designers from the Master of Design (MDes) in Inclusive Design program[7] at OCAD University participated in evolving the pre and post-training questionnaires and prototype. The test, revise, test, revise approach took the form of a one-on-one in-person or online via Skype[8] interview over a 4-week period.

The interviews were loosely structured around a think-aloud, walk-through of the pre-training questionnaire, training module and post-training questionnaire. Deeper probing was cued from participants' interaction with the artifacts as well as verbal and non-verbal cues. As the prototype evolved from paper (Tests 1-3) to digital (Tests 4-5), the interview became less exploratory and more formative in nature. Figure 2 depicts the iterative design method used to develop the evaluation questionnaire and prototype tested in the study.

[7] http://www.ocadu.ca/graduate-studies/programs/inclusive-design
[8] http://www.skype.com/en/
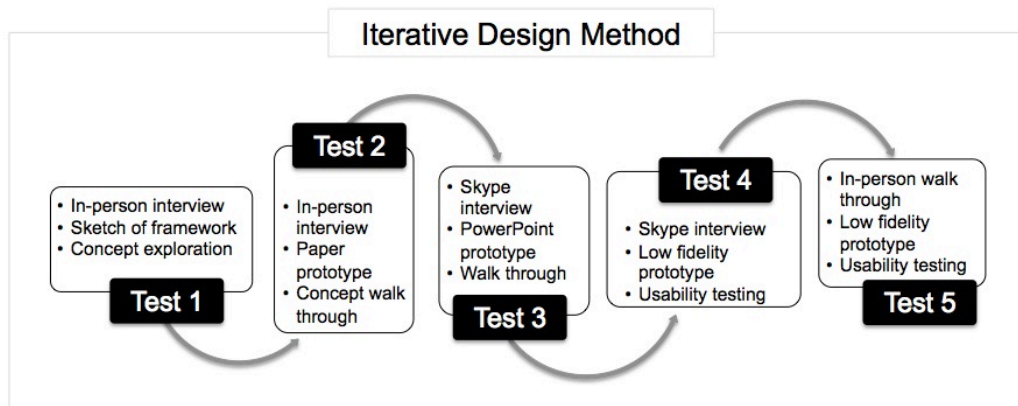
Figure 2: Iterative Design Method

The prototype began as a sketched outline and gradually became more defined over the five iterations of design testing. In the first rounds of testing, participants primarily focused on structure and usability. Suggestions were made for navigation improvements, topic order, font size, and type. As the prototype evolved and usability issues were addressed, the focus shifted to critiquing of the content.

Observational notes taken during the five tests revealed several themes related to the design of training modules and survey questions.

3.2 Prototype Testing: Training Module Findings

- **Build flexibility into the module design.**

    Participants are busy and lack the time required to take optional
    training offered by employers. One participant reported that a
    `Save Till Later' feature would motivate her/him to start the
    training; knowing their work would not be lost if they had to
    leave it unfinished. The feature flexibility meant training could fit
    within their workload. Stated completion times for the training
    module and individual topics were appreciated as they helped
    participants manage their time.

- **Usability issues detract from learning**.

    The majority of feedback on the first two iterations focused on
    usability issues. Suggestions included visually highlighting the
    active topic, reordering the topics to match the user's mental
    model and changing the font for improved readability. By Test 3,
    the focus had shifted from usability issues to identification of
    missing content: "Designers like examples", "How can I apply
    what I've learnt?" as well as topic order: "Should the 'Why
    inclusion?' be right after the 'What is inclusion?' topic?"

- **Post-module quizzes may improve learning outcomes.**

  One participant recommended the module end with a quiz to test learning. Knowledge of a test was reported by several participants as a motivating factor to "pay more attention". A subsequent participant exclaimed a love of quizzes as an affirmation of their newly gained knowledge.

- **Game mechanics as a method to increase engagement.**

  A social element in the form of 'Designers like you also completed these modules' was included in Test 2. It went unnoticed until a 'Collect more badges' title was added in the third iteration. The idea of collecting badges was well received: "I really like this." The anticipated question of whether the badge was performance or effort based was never asked.

3.3 Prototype Testing: Questionnaire Findings

- **Question clarity directly impacts question response time.**

  Several questions gave participants pause for thought or cause to utter exclamations like "oh man" or "hum …". When participants were probed about their reactions, the underlying issue was awkward sentence structure, unclear meaning or an inability for the participant to apply the question to their situation. Simplifying the sentence structure and language across iterations incrementally improved response time. For

example, "design of digital products/services" was simplified between Test 1 and Test 3 to "digital design".

- **Context and transparency of intent establish trust.**

  Several questions arose regarding privacy. Introductory copy was added specifying the answers would be reported as an aggregate. One participant interpreted the 10 minutes as the time given to complete the survey. Explanatory text was added to clarify the time was related to approximate completion time.

- **Educational background and job titles are as diverse as designers are unique.**

  Other than Master of Design in Inclusive Design, no two participants had the same educational background or job title. All participants had to think about how to answer their 'role in the design process' question, as they performed multiple job functions. The question was made more difficult for one participant who had recently changed jobs and was not sure under which position to answer the question. Both questions were revised to accommodate variations in educational background and job titles.

- **There is minimal 'onboarding' of new designers.**

  One participant was unable to specify the number of people in the organization, or confirm whether or not there was a Diversity and Inclusion mandate. The inability of participants to report on the organization's Diversity and Inclusion policy lead to the question being deleted in Test 4. Training beyond the design work they were hired to do was not part of the onboarding process. An additional option, "No idea, I'm a contractor" was added to the question about the number of people in the organization.

- **Inclusion of users in the design process is low.**

  Two out of three participants identified usability testing as a research activity employed to understand user needs. The decision to test or not to test was in the Product or Project Manager's hands, and was primarily determined by budget and project size. Other than focus groups to understand product requirements, there was no discovery research undertaken to understand needs.

4   Inclusive Design Training Results

This study was comprised of an e-learning prototype that was deployed between a pre- and post-training evaluation questionnaire. The pre-training questionnaire was designed to gain an understanding of the designer's background. Questions in the post-training questionnaire were designed to examine if learning about Inclusive Design contributed to 'shifting' the designer's thinking beyond 'the norm' to include people with a range of abilities in the design process.

The pre-training questionnaire consisted of 10 questions while the post-training questionnaire consisted of four questions. The design of both the questionnaire and the prototype were informed by the results of the five one-on-one interviews with design practitioners. The interviews were a combination of exploratory questioning and prototype usability testing. See Appendix B and C for the pre and post-training questionnaire.

Taking a rapid test-fix-test approach, the survey questions were iterated for clarity and inclusiveness, while the Inclusive Design training module was iterated for usability, comprehension and learning effectiveness. Part way through the participatory design process, testing shifted from paper to a digital survey and low fidelity

prototype. Screen shots of the Inclusive Design training prototype are available for review in Appendix D.

An invitation to participate in the study was extended to design practitioners working in Ontario via my LinkedIn[9] community. Of the 60 participants invited, 26 design practitioners indicated interest in the study. The total number of designers who completed the pre-learning survey was 10. Seven of the 10 participants continued on to complete the post-learning survey. The study ran for one week from March 16 to March 23, 2014. Figure 3 summarizes the Inclusive Design Study method.
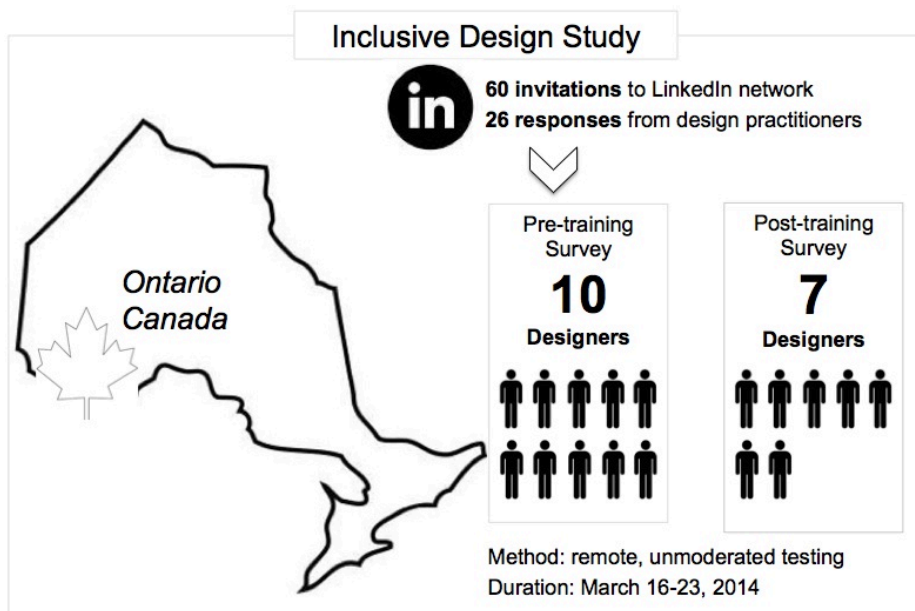
Figure 3: Inclusive Design Study

4.1 Designer Roles

Design practitioners perform multiple roles in the design process as shown in Figure 4, where the roles are mapped against steps in the design process. Participants were asked to select as many options as applicable that best described their job. Of those who participated, 70% reported User Experience, 60% reported Content Strategy/Writing, 50% reported Architecture and Interaction Design, 30% reported Design Research Manager and Usability, 20% reported Digital Experience Strategy, and 10% reported Visual Design to describe their job function. None of the participants reported Front-end Design/Development as a job function.
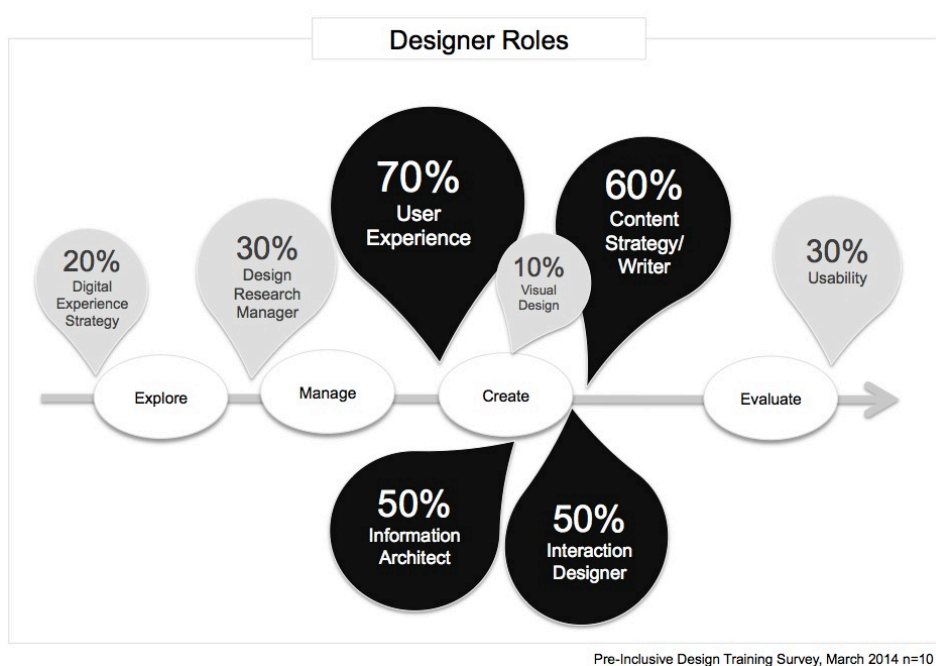
Figure 4: Designer Roles

4.2   Years of Experience

When asked how long they had been designing digital products and services, over 60% of the participants had more than 10 years of experience while 40% had between 3 and 10 years. None of the participants had less than 2 years of experience. Figure 5 depicts the exact breakdown that was reported. These results indicated that the majority of the participants had a significant number of years of expertise, with the lower end having more than 2 but less than 6 years and the higher end having at least 7 or more years.
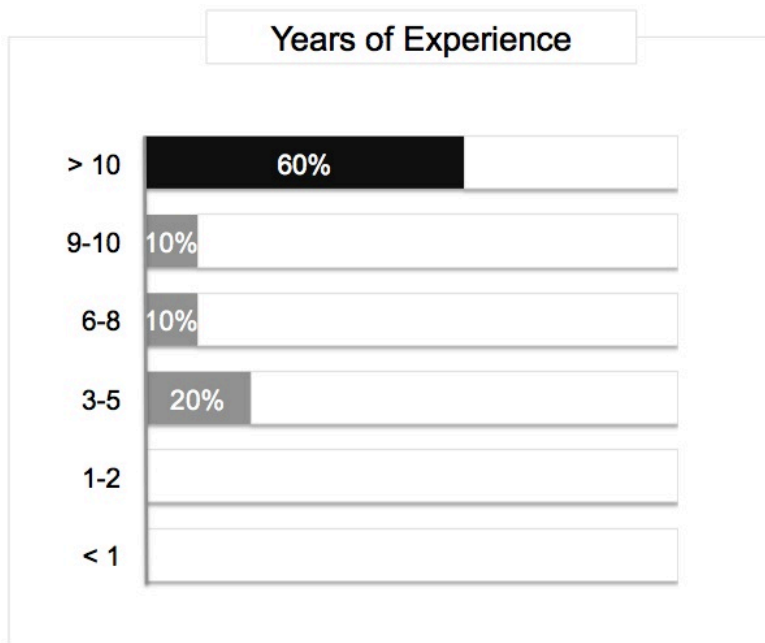
Pre-Inclusive Design Training Survey, March 2014 n=10

Figure 5: Years of Experience

4.3   Education and Training

The research suggested that self-study appears to be the most common form of education amongst design practitioners. As shown in Figure 6, only 30% of participants indicated they had received their education through a degree program. Of those with a university degree, 2were in a related Design field while 1 was in the Communications field. None of the degrees obtained by participants were the same, which suggests designers come from diverse backgrounds. For confidentiality reasons, the results do not disclose the name of any specific program or institution. The majority of participants were educated through self-study (70%), which is defined as workshops, seminars, courses and conferences (non-academic study).

Pre-Inclusive Design Training Survey, March 2014 n=10
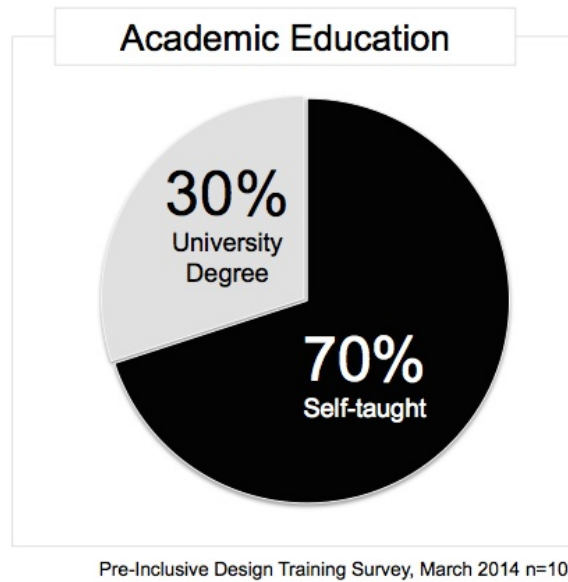
Figure 6: Academic Education

As shown in Figure 7, some participants received on-the-job training when they were newly hired. Seven participants received no formal training, where "formal" is defined as structured and controlled training that is delivered as part of an Employee Training and Development program.

When asked specifically about Inclusive Design training, one participant (10%) reported receiving two days of intensive training on accessibility. These results indicate a low level of academic education and formal training in design as it relates to inclusion and accessibility for new employees suggesting a knowledge gap.
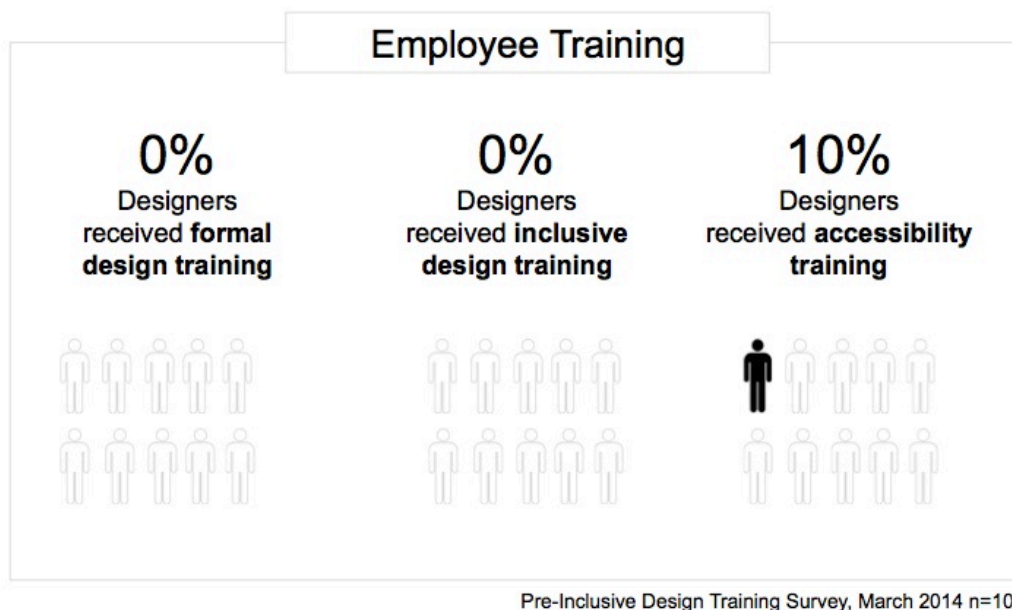
Figure 7: Employee Training

4.4   Types of Organizations

Participants were asked to describe what their organization does, and most responded to the question in terms of describing the organization by type. Responses were classified into Financial Services, Advertising Agency/Digital Agency, Freelancing/Consulting, and Health. Figure 8 shows the breakdown by organization type. Of those who participated, 40% reported working in Financial Services, 30% in Advertising/ Digital Agency, 20% in Freelancing/Consulting and only 10% reported working in the Health sector.

Pre-Inclusive Design Training Survey, March 2014 n=10
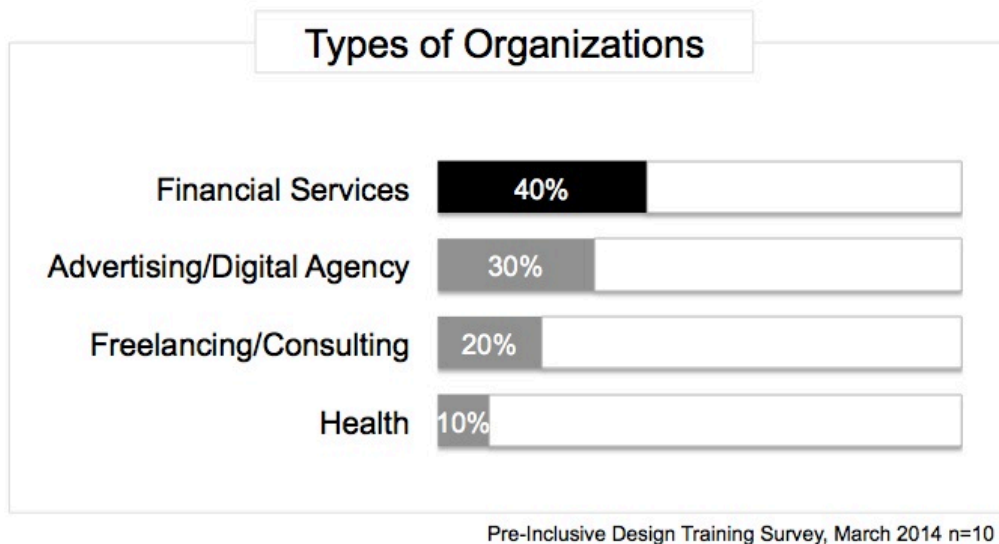
Figure 8: Types of Organizations

4.5   Number of Employees

Participants in this research reported that they all work in Ontario either as self-employed or full-time employees. Many participants (40%) indicated they worked for larger organizations with 1,000 or more employees. The remaining participants worked for smaller sized organizations of 200 employees or less. Employment distribution was evenly spread with 20% either working in an organization with Less Than 10 Employees, 26-50 Employees or 51-200 Employees respectively. As shown in Figure 9, no respondents reported working in mid-size organizations (201-1,000 employees) or organizations with 11-25 employees.
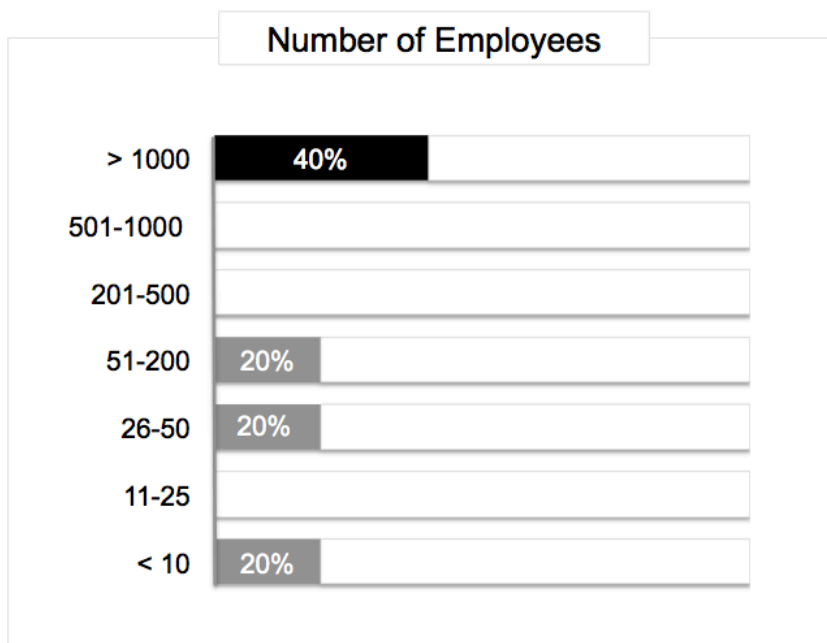
Pre-Inclusive Design Training Survey, March 2014 n=10

Figure 9: Number of Employees

4.6　Research Activities

The pre-training questionnaire included a question on what type of research is done to understand user needs. The terminology of several design research activities was modified slightly to eliminate inconsistent references to the same activity. For example, questionnaires were standardized as surveys, usability tests as usability testing, online communities as web forums, and so on. Additionally, statements where respondents referred to research activities that "should take place" versus research activities that "actually took place" were excluded from the analysis.

As shown in Figure 10, the most common type of design research described by participants was Usability Testing which was reported by 50%, whereas, 40% reported Surveys, 30% reported Interviews, and 20% reported "Other", which constituted:

> Competitive Analysis, Diary Studies, Ethnographic Research, Empathy Mapping, Focus Groups, Literature Review, Personas, Segmentation Analysis, Strategic Research User Scenarios, Web Forum, Workflow Optimization.

Research Activities

Usability Testing — 50%
Surveys — 40%
Interviews — 30%
Other — 20%

Competitive Analysis, Diary Studies, Ethnographic Research, Empathy Mapping, Focus Groups, Literature Review, Persona Development, Segmentation Analysis, Strategic Research, User Scenarios, Web Forum, Workflow Optimization.
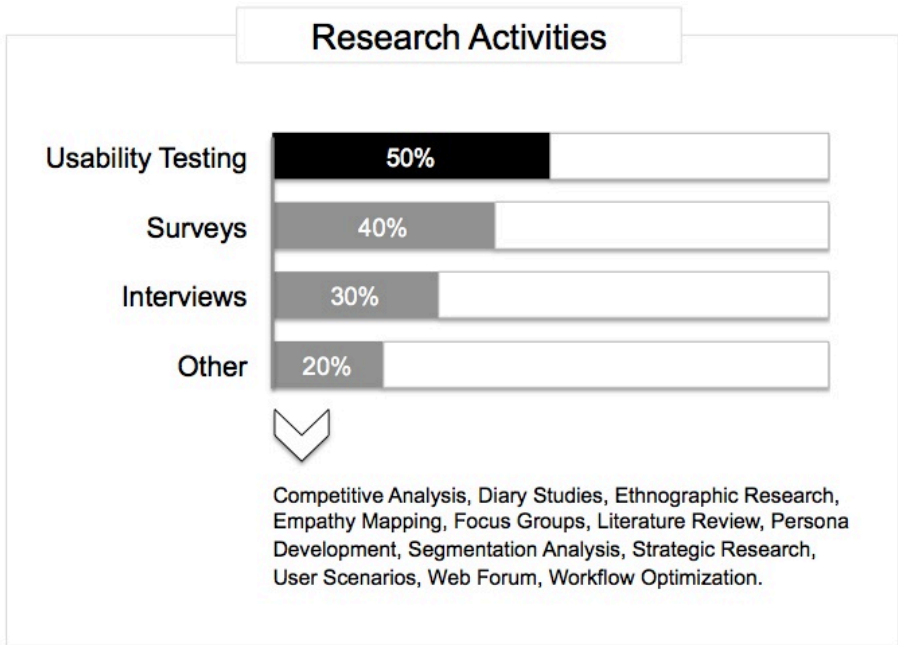
Pre-Inclusive Design Training Survey, March 2014 n=10

Figure 10: Research Activities

4.7   User Participation

A review of the activities reported by participants to understand user needs revealed varying degrees of involvement of 'real' people in the design process. The level of human contact ranged from direct, person-to-person contact to observational, and self-

Pre-Inclusive Design Training Survey, March 2014 n=10

Figure 11: User Participation

reported methods such as Digital Diary Studies and Surveys. Other reported methods such as Competitive and Segmentation Analysis, Persona Development, User Scenarios, and Workflow Optimization, relied on subject-matter expertise to extrapolate user needs.

Research activities involving users in the design process was reported by 70% of participants. As shown in Figure 11, 30% of participants reported research activities that relied on subject-matter expertise, rather than the involvement of users.
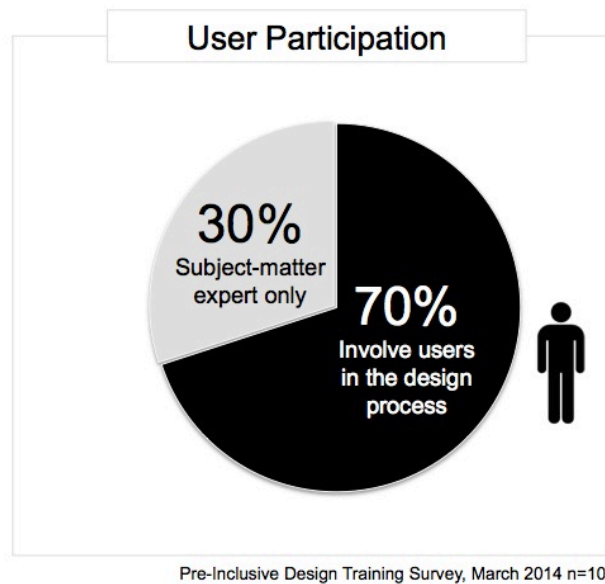
34

4.8   Inclusive Design Rating

The pre- and post-training surveys ended and began respectively with the same question. Participants were asked to rate their agreement of the statement:

> Including diverse users in the design process enables you to create digital products and services that are better for all users.

The intent of the question was to measure what, if any difference the Inclusive Design training had on a designer's consideration of inclusion in the design process. Of the 10 participants who completed the pre-training questionnaire, 7 completed the post-training questionnaire. The pre-training questionnaire responses were equally split between 'Strongly Agree' and 'Agree' with the statement.

The post-training results indicated that those reporting 'Strongly Agree' increased slightly by 7% to 57% while those who reported 'Agree' decreased by 7% to 43%. Zero participants reported to be 'Neutral' or to 'Disagree' with the statement. See Figure 12 for a visual of the increase that occurred as a result of participants completing the Inclusive Design training module.

Inclusive Design Rating

50% Agree — 50% Strongly agree (Pre-training)

57% Strongly agree — 43% Agree (Post-training)

Pre-Inclusive Design Training Survey, March 2014 n=10
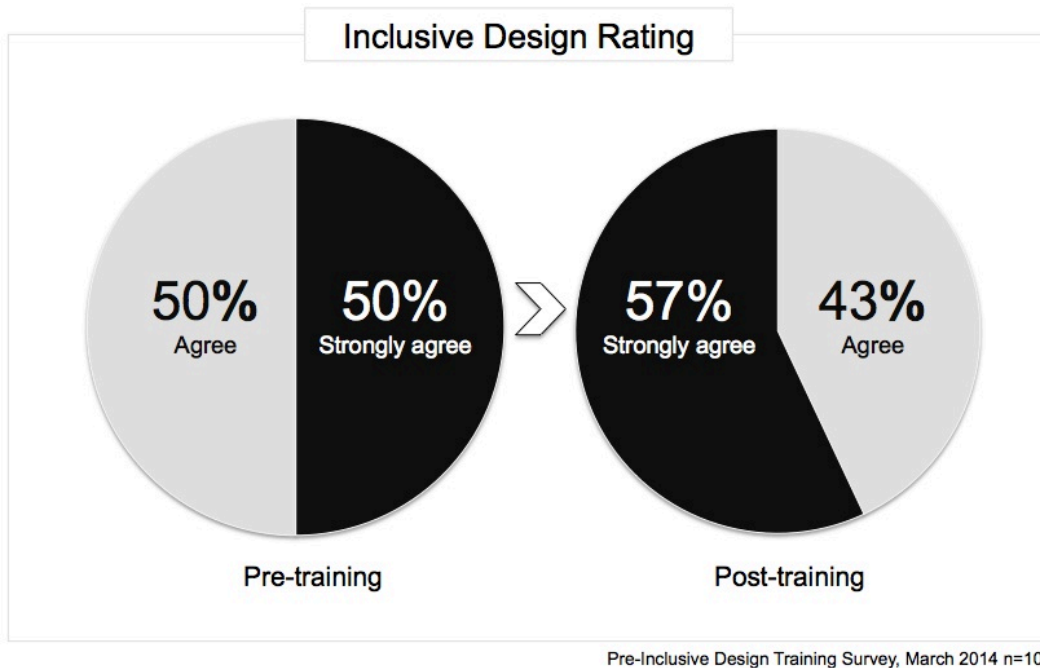
Figure 12: Inclusive Design Rating

4.9   Inclusive Design Understanding

This research proposed that an aspect of closing the knowledge gap would be the creation of a common understanding amongst design practitioners of what inclusion means in the design process. The primary message delivered in the training module was that every design has the potential to include or exclude people. As designers, we must prevent exclusion by considering diversity in recognizing that a human quality in each of us is uniqueness, and thereby, difference.

When the study participants were asked in the post-training survey to explain inclusively designed products or services to a peer, participants responded with descriptions that indicated active engagement with the prototype. The description from the `What is inclusive design?' module was broken down into key descriptors that were compared with participant responses. The top three most memorable descriptors as indicated in Table 1 were "easier for everyone to use (i.e. useable)", "considers a range of abilities" and "understands and meets diverse needs".

Table 1: Inclusive Design Definition

Inclusive Design Descriptor	Mentions
Easier for everyone to use (i.e. useable)	**4**
Considers a range of abilities	**4**
Understands and meets diverse needs	3
Solutions that benefit everyone	2
Identifies barriers to use early on in the design process	1
Engages diverse users in the design process	1
Removes barriers that create undue effort and separation	1
Enables equal, confident and independent participation	0

Other descriptors used by participants to define inclusive design came from topics elsewhere in the prototype. The responses were as follows:

"Products accessible and usable for a range of individuals, who have a range of abilities, rather than products designed to meet the needs of the average individual."

"Inclusive design is not an after-thought or alteration to something that is already in market."

"Inclusive design is about expanding our ideas of who is in the groups we design for."

"Inclusive design is not about accommodation of disabilities, but about better design for all."

A word cloud (see Figure 13) was generated from participant descriptions using a tool called Wordale[10]. The outcome of the analysis shows that although "easier for everyone to use", "considers a range of abilities", and "understands and meets diverse needs" were the most memorable descriptors, the keywords "easier, everyone, useable, range, and abilities" were not as common as "design, products, inclusive, services, and needs". The intent of the more prominent keywords in the wordle, reflected the answers that participants gave in 'explaining inclusively designed products and services' more so than the importance behind the question.

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[10] http://wordale.net

Figure 13: Inclusive Design Keywords

4.10   Inclusive Design Examples

All respondents were able to describe inclusive design as indicated by the descriptions they wrote to a peer. The responses shared by participants when asked to provide examples of inclusion in the training module indicated that understanding was limited in scope and practice. The examples primarily focused on web content accessibility rather than the broader principles of inclusion, which were shared as a resource in the 'How to get started' module.

Table 2 shows that the most common example given by participants was the availability of a transcript along with videos, so "those with difficulty hearing can review its content". The remaining examples

reported by participants were large navigation button, large font size and high contrast colour and text contrast. One participant reported the "many different learning options included" in the module such as video, reading and worksheets.

Table 2: Training Module: Inclusive Design Examples

Web Content Accessibility Principle	Description	Web Content Accessibility Guideline[11]	Example	Mentions
Perceivable	**Information and user interface components must be presentable to users in ways they can perceive.**	**Time-based Media**	**Video transcripts**	**5**
		Distinguishable	Large navigation buttons and font size, high colour and text contrast	3
		Adaptable	Multiple learning options	1
Operable	User interface components and navigation must be operable.	—		
Understandable	Understandable - Information and the operation of user interface must be understandable.	—		
Robust	Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.	—		

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[11] http://www.w3.org/TR/WCAG20/#guidelines

4.11 Learning Effectiveness

The final question asked of participants focused on soliciting suggestions on how the training module might be made more engaging and/or inclusive. The intent behind this question was two-fold:

1. Identify usability and accessibility enhancement opportunities and,
2. Challenge the design of the module against what was taught.

The suggested enhancements in Table 3 touched on all Inclusive Design Principles as outlined in the WCAG 2.0, with the exception of Preventative and Tolerant (see WCAG 2.0). The suggestions: "subtitles in videos are nice to read along and have a visual as well" and "make the language more accessible for ESL learners" specifically addressed diversity (Equitable) amongst potential learners whereas all other suggestions pertained to usability and accessibility issues rather than the needs of diverse users.

Table 3: Training Module: Enhancement Suggestions

Inclusive Design Principle[12]	Description	Participant Suggestion
Equitable	Be welcoming, do not discriminate and engage with people. Create different user experiences and make certain they have equally valuable outcomes. Aesthetics matter.	Add subtitles in videos Make language more accessible for ESL learners
Flexible	Provide options. Think who, how, why, what, where and when people will be using your website. Make sure there is choice for diverse users and maintain device independence.	Larger text for body copy
Straightforward	Be obvious and not ambiguous. Make sure your website's features add value, not complexity. Remember, good design is as little design as possible.	Links to supporting information confusing
Perceptible	Do not assume anything. Make sure your website's purpose is clear, its content, structure and sequence are meaningful and convey information to all of the senses.	Make the path through information clearer
Informative	Make sure people know where they are on your website and provide different ways for them to find what they're looking for. Be timely, predictable, uncomplicated, and precise.	More examples
Preventative	Provide easy to follow instructions and gently guide users in interacting with your website. Help them to minimize errors when submitting data, through well considered form design.	_
Tolerant	Handle errors respectfully and indicate precisely what the error is, where it is and how to fix it. Remember to let people know the outcome.	_
Effortless	Do not make demands or place restrictions on your users. People should not have to work or think hard to find what they want on your website. Ensure it can be used efficiently and effectively.	Activate links Shorter videos (7-10 minutes maximum) Make it easier to use-popup windows require adjustments
Accommodating	Be approachable, uncluttered and give people room to man oeuvre. Make sure that your website is unobtrusive and can be accessed by different devices of all shapes and sizes	Test for accessibility with assistive devices
Consistent	Follow standards, guidelines, conventions and best practices. Provide a familiar environment with memorable functionality.	Fix the grammar

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[12] http://www.sandiwassmer.co.uk/resources/the-ten-principles-of-inclusive-web-design/

4.12 Learning Experience

The desired outcome of this study was a positive learning experience for participants. Results from the pre-study iterative testing showed that usability issues detracted from learning, while videos increased engagement. Although participants reported areas for improvement, several participants mentioned their enjoyment of the Inclusive Design training experience while learning about inclusive design:

"found it very easy and interesting to work through"

"enjoyed all the information within videos"

"found the module quite engaging; more so than standard online courses"

5   Findings Discussion

5.1   Closing the Knowledge Gap

Designers come from diverse backgrounds and the study results

confirmed my approach—that targeting a specific role for training

would not achieve the desired result of inclusion being as much of the

design process as usability and accessibility. Inclusive design training

must cover all job roles that contribute to the design of digital products

and services.

The low number of designers with university degrees (30% of n=10)

was interesting. These findings were contrary to a recent career survey

by Farrell & Nielsen (2014) where the majority of designers today hold

degrees (90% of n=963). However, similar to Farrell & Nielsen (2014),

this study found no single degree defines this field. Currently, the

breadth of academic programs shaping designers' knowledge makes

incorporation of inclusive design into the curriculum challenging.

Although there is agreement that inclusion does need to be addressed

at the academic level, a gap still remains amongst design practitioners

already in the field.

Even more surprising than the lack of academic training amongst

participants was the lack of professional training that designers in the

field received when starting with an organization. Without exception, all participants reported they did not receive design training when they were 'onboarded' by the organization. The knowledge gap amongst designers about the inclusion of diverse users in the design process could be further attributed to the low number of participants who reported having received accessibility training (10% of n=10).

Farrell & Nielsen (2014) reported that a characteristic of a good UX professional is the "lifelong learner", which participants of this study reported. The majority (70% of n=10) of the designers reported gaining their knowledge through self-study, and the level of self-study alludes to designers' motivations and their desire to learn on-the-job. This is in keeping with Farrell & Nelson (2014) who concurred that continuing education was an expressed desire and reported that some of their respondents wished for courses that had been previously unavailable at the time.

The desire to learn combined with all participants 'Agreeing' or 'Strongly Agreeing' (n=10) that inclusion of diverse users in the design process creates digital products and services that are better for all users, suggests designers would be open to Inclusive Employee training. Training aligns designers with the design methodology practiced by the organization. It provides organizations the opportunity

to apply Inclusion and Diversity policies and practices to digital products and services while creating a shared understanding of inclusion in the design process.

5.2   Inclusive Design Training Effectiveness

Designers hold multiple roles in the design process and as expected, the majority of job functions performed by designers centered on User Experience, Content Strategy/Writing, Information Architecture and Interaction Design (70% of n=10). It was not surprising that Usability Testing was reported as the most common research activity (50% of n=10); particularly when 70% of participants involved 'real' people in the design process. It was, however, unfortunate that one-on-one interviews and diary studies did not make it into the list considering the focus of organizations on customer experience journey mapping.

Organizations within Ontario must comply with the Accessibility for Ontarians Disabilities Act (AODA) [13]. Given that a large proportion of participants work for organizations with more than 1,000 employees (40% of n=10), this might explain why so many participants focused primarily on web content accessibility when reporting examples of inclusion and opportunities for module enhancements.

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[13] http://www.aoda.ca

Overall, the structure of the training module was reported to be effective (Figure 14). The video stories were appreciated and considered engaging by participants—they "found it very easy and interesting to work through". Based on participants' descriptions of inclusively designed products and services given to their peers, stories seem to be effective in helping participants create meaning from the user experience and aspirations (McDonagh, 2008). The top three descriptors—"Easier for everyone to use ", "Considers a range of abilities", "Understands and meets diverse needs"—succinctly describe inclusive design.
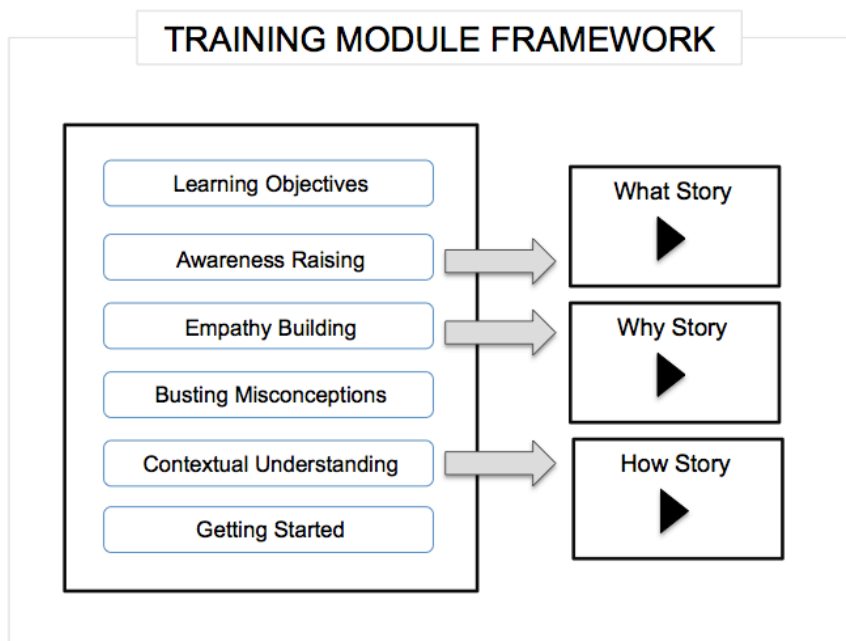
Figure 14: Training Module Framework

Training of designers is only one component of designing inclusive

digital products and services. The examples of inclusion and

enhancements reported by participants indicate more work is required.

Training can influence the adoption of inclusive design thinking and

create a shared understanding of what inclusion means in the design

process. However, for sustainable change, where inclusion is part of

the organizational fabric, people practices and process with people

placed at the heart of every design decision is necessary (see Figure

15).

Figure 15: Practice, People and Process

5.3   Future Training Module Enhancements

Post completion of training, participants were asked for suggestions on how the module might be made more engaging and/or inclusive. Based on the rich feedback received during prototype testing (Table 4), there was an expectation that participants would 'push' their design thinking further—offering suggestions that could accommodate the needs and preferences of different learning styles and diverse user needs.

Table 4: Iterative Design: Prototype Improvements

Participant Feedback	Prototype Improvement
"Accessibility is more than just mechanics. Also about how it fits into day-to-day job: I look at time and pre-requisite as when I'm at work I don't have time."	Made pre-requisite and duration more visible in overview page Added a time indicator to topics in left navigation system
"What about Help?"	Added tool tips
"If I get started, I need to know I can continue where I left off". "	'Added a Continue Later' utility link
"I like the Exit button: It would be cool if I didn't have to start again."	Replaced 'Continue Later' with auto-save on 'Exit' Highlighted feature to learners with a tool tip
I'm just thinking ... as a designer, what is most valuable to me to make software accessible? If Job Aids include tools that helps me speed up and/or test design process …"	Expanded 'How to get started' content
"Nice, a little badge. So this would be the Inclusive Design badge and then you can get other badges depending on what modules you complete.	Expanded badges idea to show earned badges you have and how to earn more Added 'Change Preferences' and 'Edit Profile' links
"I'm curious how the invisible disabilities get recognized. If you bring up cognitive and mental disabilities it accounts for a much larger population."	Embedded critical thinking into the module in the form of a "Something to think about" question
"Soon as I read busting myths, I got it. Want to see a visual. Add a statistic to illustrate."	Expanded the 'Busting myths' content

The intention behind asking study participants for suggestions on how to make the training module more engaging and/or inclusive was two-fold:

1. To assess how thoroughly participants had read the training material and,

2. To allow participants time to reflect and interpret what they learned.

Reflection helps to interpret and frame our learning, critically examine our work, and apply learning to making improvements (Papadopolos et al., 2012). The following ideas were intentionally left out of the prototype to allow 'room' for participants to reflect and contribute to the Inclusive Training Module design.

"Allow me to choose if I want to do the training in all text or all videos."

"A tool to clip content and save it to your area. It would be great to export My Notes in plain text."

"I like the Glossary. The descriptions should be built into the page."

A lot of designers work by examples, so show good/bad design is an option."

"Include ability to bookmark in the videos."

"Maybe have a couple of different types of question styles at the end of each topic. Do a five question quiz with a final quiz at end."

Future work would evolve the prototype to include participant suggestions and align with the principles of Universal Design for Learning (UDL)[14]:

1. **Presentation**—to offer designers various ways of acquiring information and knowledge.
2. **Expression**—to provide designers alternatives for demonstrating what they know.
3. **Engagement**—to tap into designers' interests, challenge them appropriately, and motivate them to learn.

Inclusive design is not design for everyone. Instead, "it is design to accommodate as many people as you can, while being mindful of how different users might use your design" (Iterative Testing Participant, 2014).

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[14] http://accessproject.colostate.edu/udl/documents/what_is_udl.pdf

6   Conclusion

The research suggests that in broadening a designer's perspective of end users requires inclusion of diverse user groups in the design process (Jooste & Beiling, 2012). With an aging, culturally diverse Canadian population where one in seven Ontarians live with a disability, it is becoming increasingly apparent that designers need to create inclusively designed products and services. Inclusively designed products and services not only serve the needs of people with disabilities, but are more broadly useful, and positively impact the larger population.

Inclusively designed digital products and services that embrace the needs of diverse users can be expressed in terms of social and economic benefits. From a competitive advantage standpoint, inclusive design leads to increased customer satisfaction, enhanced corporate social responsibility and better market penetration. In this regard, this study proposed that by enabling design practitioners to become more aware of involving diverse users in the design process, their work would contribute to inclusion.

The Inclusive Design training prototype achieved its objective of closing the designer knowledge gap. The participants in this research had varied work experience and training, which contributed to a more robust research sample. There was an overall increase in awareness reported by the participants, which contributed to demonstrating that the participants recognized the value of involving end users in the design process. While, this research showed evidence for the need to increase awareness, it also offered some insight into what the next steps in this research should focus on. The opportunity for future research to focus on integrating the principles of Universal Design Learning, will allow for the development of content and testing that can be more broadly useful and positively impact the wider population.

Training alone is not enough to counter digital exclusion. Inclusion of diverse people in the design process needs to be weaved into the fabric of organizational culture. Inclusive Design training in conjunction with practice and process changes will help direct, motivate, and shape the path to more inclusively designed digital products and services. In this regard, training is the 'bright spot' that leads to the adoption of inclusive design thinking by designers.

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8   Appendix A: REB Approval Letter

Research Ethics Board

February 3, 2014

Dear Sara Dunning,

RE: OCADU 159 "A framework for designing an inclusive design e-learning training module for designers of digital products and services."

The OCAD University Research Ethics Board has reviewed the above-named submission. The protocol and the consent form dated February 3, 2014 are approved for use for the next 12 months. If the study is expected to continue beyond the expiry date (February 2, 2015) you are responsible for ensuring that the study receives re-approval. Your final approval number is **2014-09.**

Before proceeding with your project, compliance with other required University approvals/certifications, institutional requirements, or governmental authorizations may be required. It is your responsibility to ensure that the ethical guidelines and approvals of those facilities or institutions are obtained and filed with the OCAD U REB prior to the initiation of any research.

If, during the course of the research, there are any serious adverse events, changes in the approved protocol or consent form or any new information that must be considered with respect to the study, these should be brought to the immediate attention of the Board.

The REB must also be notified of the completion or termination of this study and a final report provided before you graduate. The template is attached.

Best wishes for the successful completion of your project.

Yours sincerely,
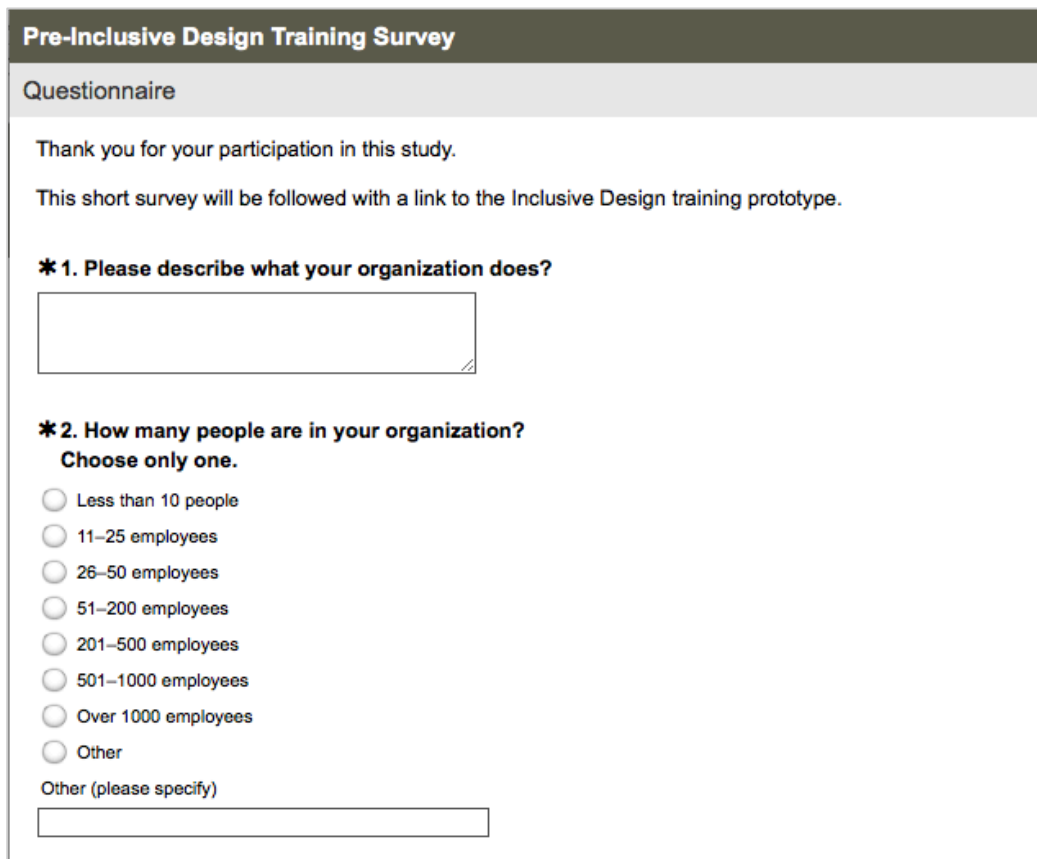
Tony Kerr, Chair, OCAD U Research Ethics Board

9 Appendix B: Pre-Training Questionnaire

Survey questions and answers were developed over a series of iterative tests. The final questionnaire was delivered to study participants via SurveyMonkey[15], a web-based survey solution. Upon completion of the questionnaire, participants were "Thanked" and asked to link to the Inclusive Design prototype.

Pre-training Survey Questions 1-2

Pre-training Survey Questions 3-9

＊3. Which of the following best describes your job function?
Select all that apply.

☐ Manager
☐ Digital experience strategy
☐ Design research
☐ User experience
☐ Information architecture
☐ Interaction design
☐ Visual design
☐ Content strategy/writing
☐ Usability
☐ Front-end design/development
☐ Other

Other (please specify)

[   ]

＊4. What education / training (workshops, courses, etc.) do you have relevant to your job?

[   ]

＊5. How long have you been designing digital products and services?
Choose only one.

○ Less than 1 year
○ 1–2 year
○ 3–5 years
○ 6–8 years
○ 9–10 years
○ Over 10 years

＊6. What type of design research is done to understand user needs?

[   ]

＊7. Does your organization have an onboarding program to train new designers?

[   ]

＊8. What training have you received on inclusion of diverse users in the design process?

[   ]

＊9. How much do you agree with the following statement:
Including diverse users in the design process enables you to create digital products and services that are better for all users.

○ Strongly Agree
○ Agree
○ Neither Agree nor Disagree
○ Disagree
○ Strongly Disagree

[Next]

Pre-Training Survey Thank You

Pre-Inclusive Design Training Survey

Thank you for completing the pre-training questionnaire.

The information you shared will be kept confidential.

Next step: complete the Inclusive Design training prototype. The prototype is bare bones. This means some links are clickable and the content is cobbled together from various sources. For testing purposes, external links open in a popup window so that you can easily return to the prototype. If you watch the videos in full, it will take you approximately 30 minutes to complete.

Copy and paste the link below into a browser window. It is not necessary to click the Done button, your answers are captured.

http://699cip.axshare.com/overview.html

Should you have any questions, feel free to contact me.

Sara Durning
Graduate Student
Masters of Design (MDs) in Inclusive Design
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Prev   Done

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10 Appendix C: Post-Training Questionnaire

Similar to the pre-Inclusive Design training questionnaire the questions
and answers were developed over a series of iterative tests. The final
questionnaire was delivered to study participants in SurveyMonkey.
The survey link was embedded into the final screen of the Inclusive
Design prototype (See Appendix D).

Post-training Survey Questions

Post-Inclusive Design Training Survey

Questionnaire

Thank you for completing the Inclusive Design training prototype.

Before you go, a couple of questions to help me understand the effectiveness of this learning module.

＊1. How much do you agree with the following statement:
   Including diverse users in the design process enables you to create digital products and
services that are better for all users.

○ Strongly Agree
○ Agree
○ Neither Agree nor Disagree
○ Disagree
○ Strongly Disagree

＊2. How would you explain inclusively designed products or services to a peer?

＊3. Can you give an example of how this learning module was designed for inclusion?

＊4. Do you have suggestions on how this learning module might be more engaging and/or
   inclusive?

Next

Post-training Survey Thank You

Post-Inclusive Design Training Survey

Thank you.

Thank you for participating in the study. Your support is appreciated.

I will be analyzing the data and compiling aggregated results for a final paper due May 9, 2013. Should you wish to read the paper, let me know and I will send you a PDF version upon completion.

Thank you again for your support. Please reach out to me if you have questions or concerns.

Sara Durning
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[Prev] [Done]

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11   Appendix D: Inclusive Design Training Module

The Inclusive Design training module was made available to participants as an online prototype[16]. The prototype was built using Axure[17], a drawing software to create user interface mockups and wireframes, and content was sourced from the Internet.

The prototype was comprised on seven screens, all of which are depicted on the following pages.

- Module Overview
- What is inclusive design?
- Why inclusive design?
- Busting Myths
- Understanding Capabilities
- How to Get Started
- Test Your Knowledge
- Congratulations

---

[16] http://699cip.axshare.com/overview.html
[17] http://axure.com

Module Overview

Inclusive Design Module   Exit

Overview

Module topics:

> Overview 1 min

> What is inclusive design? 18 min

> Why inclusive design? 2 min

> Busting myths 1 min

> Understanding capabilities 5 min

> How to get started 10 min

> Test your knowledge 0 min

At Company XYZ we understand the value of diversity in designing products and services that are inclusive of as many people as reasonable possible. And, we ensure accessibility for as many of those users as reasonable possible without the need for adaptative or specialist design.

Every design decision has the potential to include or exclude customers. This module focuses on inclusion within the design process to ensure people with diverse abilities can access and use our digital products and services.

In this course, you will learn:

- What inclusion means from a design perspective
- Where diversity and inclusion fits within user-centered design
- How to integrate inclusive thinking into the design process

Start Now

This module is comprised of several videos so headphones are a consideration if you are in a public area.

Estimated duration:
30 minutes

Recommended reading:
Diversity and Inclusion at Company XYZ

Design Course
View all modules

Quick TIP
Don't worry if you get called away. On Exit, we will auto-save so you can continue where you left off.

What is inclusive design?

Inclusive Design Module   Design toolkit   My Notes   Exit

What is inclusive design?

Module topics:

> Overview 1 min ✔

> What is inclusive design? 4-18 min

> Why inclusive design? 2 min

> Busting myths 1 min

> Understanding capabilities 5 min

> How to get started 10 min

> Test your knowledge 0 min

Inclusive design is an approach that fits within Company XYZ's user-centered design process. The aim of inclusive design is to remove barriers that create undue effort and separation. Our objective is to enable customers to participate equally, confidently and independently with our digital products and services.

An inclusively designed product or service is easier for everyone to use, not just persons with disabilities. Designing for people in all their variability requires engagement of diverse users throughout the design process. By considering people's diversity, barriers are broken down and solutions that benefit everyone emerge. The key is to identify barriers to inclusion as early as possible within the design process.

The perspective of real people leads to unexpected insights that fuels innovation. Don't worry, you are not missing anything starting this video at Part 2. The video is for illustrative purposes only, and ideally should reflect the organization's design practice. For example, the reference to United Kingdom's Disability Discrimination Act (DDA) would be replaced with Ontario's Disability Act (AODA).

For AODA information, watch this short video.

Inclusive Design (2 of 3) Eden Project

0:00 / 17:09

Read Transcript

< Previous   Next >

Quick TIP
If you are short of time, watch the first three or so minutes of the Inclusive Design (2 of 3) Eden Project video.

Something to think about: Are there other disabilities you can think of not mentioned in the video?

Why inclusive design?

Inclusive Design Module

Design toolkit   My Notes   Exit

Module topics:

> Overview 1 min ✓

> What is inclusive design? 18 min ✓

> Why inclusive design? 2 min

> Busting myths 10 min

> Understanding capabilities 10min

> How to get started 0 min

> Test your knowledge 5 min

Why inclusive design?

Adoption of inclusive design is in all our interests. Longer life expectancy and reduced birth rate are resulting in an increased proportion of older people. Immigration has increased the cultural flow, while we all have some disability whether minor or major, permanent or temporary.

Designing inclusively requires us to consider a diverse group of people. We need to recognize that the true common denominator of 'normal' is that we are all different. Understanding diversity in the target market can lead to innovation, a wider market reach and improved customer satisfaction. Inclusion of a broad range of abilities affords the opportunity for elegant design solutions as opposed to accommodations.

Inclusive products and services makes lives easier.

Sherry Anderson on Online Classes for visually ...

0:00 / 1:50

Read Transcript

More stories

Something to think about: Was there anything in this video that struck you as ironic, and if so why?

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Busting Myths

Understanding Capabilities

How to Get Started

Inclusive Design Module

Module topics:

> Overview 1 min ✔
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> Understanding capabilities 5 min ✔
> How to get started 10 min
> Test your knowledge 0 min

How to get started

Inclusive design fits within our user-centered design process. You still undertake design research using the techniques in our toolbox that best close the knowledge gap. To make the research more inclusive, reach out to a broader group of people within your target audience. Consider the voices and the needs of people with a range of abilities, older adults, youth and new Canadians.

Involve people throughout the design process.

Quick TIP

If you are short of time, watch the first three or so minutes of the i-design: Inclusive Design in Action video.

i-design: inclusive design in action

0:00 / 7:51   YouTube

Read Transcript

Resources to get you started designing more inclusively.

Principles of inclusive design   Diverse personas
Map of key activities   Design process checklist
Research methods   Inclusive design glossary

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Test Your Knowledge

Inclusive Design Module　　　Design toolkit　　My Notes　　Exit

Test your knowledge

Module topics:
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> What is inclusive design? 18 m✔
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> Busting myths 1 min ✔
> Understanding capabilities 1 m✔
> How to get started 10 min ✔
> Test your knowledge 0 min

Placeholder for quiz.

< Previous　　　　　　　　　　Collect Your Badge >

Congratulations

Inclusive Design Module　　　Design toolkit　　My Notes　　Exit

Congratulations {Name}

Results of the knowledge test go here …..

Add the Inclusive Design badge
to my profile.

My Badges

Module Name

Module Name

> Change Preferences
> Edit Profile

Collect more badges

Desigers who completed this module also completed:

> User-centered Design Process
> Research Methods

Module topics:
> Overview 1 min✔
> What is inclusive design? 18 m✔
> Why inclusive design? 2 min ✔
> Busting myths 1 min ✔
> Understanding capabilities 1 m✔
> How to get started 10 min✔
> Test your knowledge 0 min ✔

Please complete this study by taking the survey.

Take the Survey