Designing Inclusive Learning Experiences Develops an Inclusive and Productive Workforce

A Technical Paper prepared for SCTE by

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1. Introduction

As the ADKAR Model - Awareness, Desire, Knowledge, Ability, Reinforcement - states "organizational change can only happen when individuals change" (Hiatt, 2006). Organizations within our industry are now challenged with creating in-person and virtual development opportunities for their employees that are both productive and inclusive. It is more important than ever that we create engaging, actionable, and accessible learning experiences for our entire workforce. This is especially important as the cable-tech industry focuses on creating a culture that celebrates inclusion in all aspects, from customer interactions to creating innovative new products.

Learning experiences designed with an inclusive mindset can increase the value of training through innovative uses of existing technology and drive the workforce's adoption of accessibility practices and guidelines. This includes being intentional in framing disability within the Dimensions of Diversity (Loden, 1991) and making training actionable and accessible. In this paper we will explore how this can be done by using the lessons learned when creating new Accessibility training content and how this has made a larger impact on the business and workforce.

2. Background

2.1. Inaccessible Accessibility Training

The Comcast Accessibility team and Comcast's learning and development team (L&D), called ULearn, originally started their partnership to create accessibility focused learning journeys in 2018. The intent was to create training for Comcast technologists that focused on accessibility awareness and outlined employee responsibilities in making products and experiences inclusive. While the two training modules developed were launched in 2019, they did not come without their own challenges. Not only were we asking a large portion of the workforce to change their mindset, accounting for accessibility in their work for the very first time, but we were using development tools to create this training that weren't in line with Comcast accessibility standards. At the time, ULearn was only starting conversations on inclusive design, building in key components like alt text or video descriptions. We were also using tools that were not fully compatible with screen readers. In our original awareness training, learners were forced to toggle back and forth between browse mode and application mode, the second being a mode not widely used by many people who use screen readers. The reality was that we had unfortunately launched accessibility training that wasn't accessible for all learners.

2.2. An opportunity to create something new

In 2020, ULearn and the Accessibility team at Comcast took the opportunity to improve on the work started in 2018, setting out to create role specific training for our technology department and solving for the accessibility issues discovered previously. Our goal was not only to create new Accessibility training content, but to use this content as a framework to make all future training content at Comcast accessible. This, in turn, will help create better training products overall while teaching our workforce how to create inclusive experiences at work and for our customers. As we launch the newly created Accessibility and Inclusive Experiences program (AIX) in 2022, we have influenced all designers and developers to begin thinking about accessibility at the beginning of product design, rather than try to retrofit solutions after a product launches. Using existing and past products as case studies, we have developed instructional templates that meet accessibility requirements and the needs of our users to shorten the development time and increase speed to market for our products.

3. Problem Statement

Our teams' reimagination of the accessibility content led us to some key questions: **How can we increase the value of learning experiences by designing them with an inclusive mindset? What change do we want to see because of these learning experiences?**

To solve for this and deliver content that makes an impact, we sought to achieve the following:

1. Be intentional in framing accessibility within the dimensions of diversity
2. Create actionable and accessible learning experiences using the tools currently available
3. Determine how we can measure the success of the learning experiences delivered

4. Accessibility and Inclusive Experiences (AIX) Principles

We start with framing accessibility within the dimensions of diversity. The Accessibility and Inclusive Experiences (AIX) Principles, developed by Comcast's Accessibility team and co-author Joel Moffatt (Principal Product Manager, Accessibility), are the pillars we used to create our learning products and the inspiration behind all of the content included.

4.1. Why do we need AIX Principles? Mindset.

Before we jump into the AIX Principles, we need to define some key terms. First, diversity is the set of characteristics — whether inherited or gained by experience — that make you uniquely you. This can include gender, sexual identity, race, religion, ability, age. At its core, inclusion is about allowing seats at the table for each of these dimensions of diversity while also hearing and valuing those voices because of, and not in spite of, those differences.

The nuances of diversity, equity, and inclusion can't be fully appreciated simply through repetition. Learning about and truly understanding cultural perspectives of others requires not just a learning posture, but an openness to the value of lived experiences other than one's own. For many learners, the idea of diving in and understanding the full cultural context of many different dimensions of diversity can be daunting. This need not be the case. Across those dimensions, there are many commonalities: in the way language is used, the value of empathy and understanding the experience of others, the function and role of allies, and so on. In other words, people don't need to start from scratch when embarking on a journey of learning about a particular dimension of diversity. An inclusive mindset is all anyone needs to get started.

4.2. Why do we need AIX Principles? Skillset.

Disability differs from other dimensions of diversity because there are some hard skills needed to succeed when delivering accessible employee and customer experiences. To be effective in gaining and employing those skills, learners need to understand the context of disability as a culture, the different methods and technologies people with disability may use to interact with content, spaces, and products. Once there's an understanding of why inclusion and accessibility are important, the workforce becomes more motivated to learn how they can create inclusive experiences and build accessibility into all they do.

In web and mobile development, developers adhere to W3C's Web Content Accessibility Guidelines (W3C, 2018), WCAG 2.1 Level AA. In learning and development settings, Universal Design for Learning principles (CAST, 2018) help educators meet students where they are by allowing for different means of expression and reception, like project based learning. For design, there are the Inclusive Design

principles. In the built world, the Americans with Disabilities Act (1990) codifies the minimal requirements to make a space accessible. Chances are, there are physical and digital aspects and platform and content considerations involved in everything you work on. And of course, you want to deliver the best experience possible for everyone who might engage with your product. And "product" here can be just about anything: email blasts, slide presentations, video entertainment, remote controls, theme park rides, apps, workspaces, and virtual learning.

4.3. AIX Principles defined

Instead of creating a curriculum that exists in a silo of disability and accessibility, we grounded the entire curriculum in Comcast's Accessibility and Inclusive Experience principles. These AIX principles intentionally cut across all dimensions of diversity and take into consideration mindset and functional solutions. The principles are the initial lens you can look through to evaluate any project, product or other work right from the outset. They are:

INTEGRAL
"Inclusion and Accessibility are in our company's DNA."
Foster a culture of diverse teams, like-minded partners, and accountable leaders driven by inclusive policies.

RESONANT
"Diversity is represented in our content, products and workplace."
Customers see themselves positively reflected in content and their needs met by our products. Use Inclusive language, cultural context, and accessible platforms.

EQUITABLE
"The experience accommodates the customer, not the reverse."
Offer choice and control over settings, formats, and means of participation to create equitable experiences, whether physical or digital.

SITUATIONAL
"Combinations of where and how users do things are endless."
Consider variables like venue, experience level, modes of interaction, and cultural context.

CONSISTENT
"Respect the user's expectations and knowledge."
Use familiar design and content conventions to make it easy to focus and understand the message and available actions.

VALUABLE
"Unnecessary features can break the experience."
Add value rather than complexity and novelty, considering actual customer needs and preferences.

5. Making training actionable and accessible

Using the Accessibility and Inclusive Experiences (AIX) principles as the foundation to create inclusive training solutions, we began evaluating our tools. Developing learning solutions is divided into two groups: the learning strategy and the technology platform. The learning strategy is the core of

Instructional Design, outlining the who, what, when, where, why, and how. The technology is used to deliver the strategy to users. Combining the two creates an experience that should meet the user's needs.

5.1. Understanding learners and learning strategy

To fully understand how to meet the user's needs we need to understand who the users are, or the 'who' in the learning strategy, which is the most important part. The challenge we faced was that, while everyone can benefit from different aspects of inclusive design, how do we systematically incorporate elements of inclusive design into all of our content and processes? How do we create a product that meets the needs of an entire workforce?

This is where the AIX principles and WCAG guide our strategy when creating inclusive learning products. When designing the Accessibility and Inclusive Experiences program, we created a multi-part learning journey that introduces new users to the concepts of inclusion and accessibility. It also includes role specific training to help users put these principles into action. When asking our technologists to comply with certain standards it was instrumental to lead by example and ensure the design of our content was resonant, equitable, and situational.

To apply and demonstrate the use of the AIX principles and WCAG, we implemented the ULearn L&D Accessibility design standards. This included:

1. High contrast between text and background of at least 4.5:1
2. Closed captioning for video content
3. Do not use color alone to convey any information
4. All content is accessible when using keyboard only
5. Provide text alternatives for all non-text content

While these are the five core standards used on all ULearn L&D content, it was important to show our learners the impact of doing more than just the minimum required standards. Working within the capabilities of the eBook tools available to our design team, we set out to demonstrate how making a product accessible can be both simple and innovative. One solution was to create audio transcriptions for each page in a course eBook (Figure 1). By recording the text included on each page as an audio file, we used the following principles of Universal Design for Education referenced in the AIX principles section of this paper:

1. **Equitable use**: this feature is useful to people with diverse abilities
2. **Flexibility in use**: this feature accommodates individual preferences or abilities, for example, a learner may prefer to listen to learning content as opposed to reading it
3. **Simple and intuitive to use**: the feature is easy to understand with written directions on what the feature is used for and how to play the audio transcription
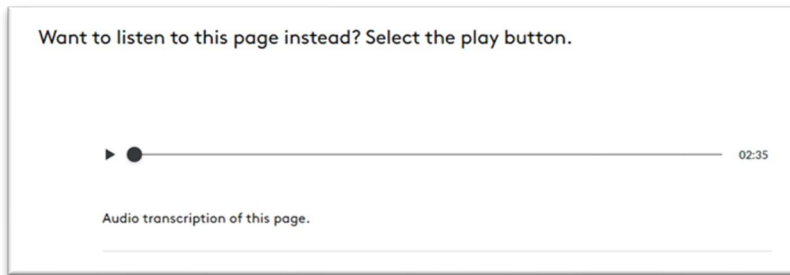
Figure 1 – Audio Transcription Example

While this solved for the content of the design, we needed to evaluate the technology used while creating an inclusive and accessible learning program to ensure it supports an inclusive experience for our learners.

5.1. Evaluating technology platforms

After discovering more about our learners and determining a learning strategy based on those findings, we needed to understand the tools and technology our learners use to interact with our training experiences. Partnering with the Comcast Accessibility Team, ULearn explored how to apply WCAG standards to develop equitable training experiences using industry instructional design tools that currently exist. Using those tools to help create speed to market, save resources, and save time, we learned that many instructional design tools used at Comcast had limited capabilities when it came to accessibility. The Comcast ULearn L&D team primarily uses two industry tools to create eBooks and interactive content. Those two tools have updated several times since 2019 to allow more control over the accessibility of the products we create for our users. However, these tools and most of the ones available in the industry, still don't have all the capabilities to create a fully accessible learning product. We have partnered with our vendors, especially providers of our development tools, to help them identify where they can improve their software.

Since these industry tools do not give us full control over the accessibility of the products we create with them, we often need to use features of these tools in non-traditional ways to meet the needs of our users. For example, we used an audio block within the eBook tool to allow users to listen to the page instead of reading it. While this isn't the expected use of the block, it fits the needs of our users. By using the tools in a different way we provide learners an equitable experience where they can choose to either read or listen.

In another example of how our tools restrict our capabilities, we can't access the code level of the products in a "What you see is what you get" WYSIWYG environment, since these tools are designed for people to create products without coding knowledge. However, since the tools don't provide the functionality to create a fully accessible experience for our learners, we now modify the output to include accessibility "fixes". This makes product maintenance more difficult. When a new version of the product is released, we implement the same fixes repeatedly. However, providing these fixes is still the better alternative for our users. As a short-term solution, we have templatized our fixes to allow developers to copy and paste them throughout similar applications.

As we know this isn't a long-term solution, our ULearn Design team is adding to our current set of standards to help instructional developers interpret WCAG standards in order to create instructional experiences. Before any products go to market we include full quality assurance documentation.

6. Determining value and impact

6.1. What demonstrates the value of training?

When determining the factors that measure the success of our created learning journeys we had to answer a key question: **How do we determine the impact of building accessibility into our training programs when one of the primary goals is to create a mindset shift?**

As learners begin their accessibility training journey, the initial indicator of program success is learner feedback and course ratings. We also determined that success was measured in our own ability to create training products that follow the standards outlined in the content, allowing us to "lead by example." Success can also be determined by recognizing new programs or opportunities that exist now, either as a direct result of the training or as a result of the company mindset shift that was influenced by developing inclusive accessibility training.

6.1.1. Learner feedback and ratings

Below are two examples of the initial feedback we gain from learners: anonymous quotes provided by the learner and a star rating, ranked on a scale between 1 (very dissatisfied) and 5 (very satisfied).

Table 1 shares just a sample of the quotes received, but they are a reflection of the actionable takeaways and mindset shift our learners gained as a result of the training content:

Table 1 – Learner Feedback

Anonymous quotes from learners		
"Very informative and helpful in terms of takeaways, specifically, terminology and mindful inclusion"	"Enlightening subject"	"This lesson really opened my eyes to how I can be more inclusive in ways that never occurred to me"

Figure 2, the Accessibility Course Star Rating, demonstrates that overall the content was well-received. Of the 13 courses launched as part of the accessibility programs, two of the 13 have received scores of 4 out of 5, while 11 of the courses have received 5 out of 5 stars, to date:
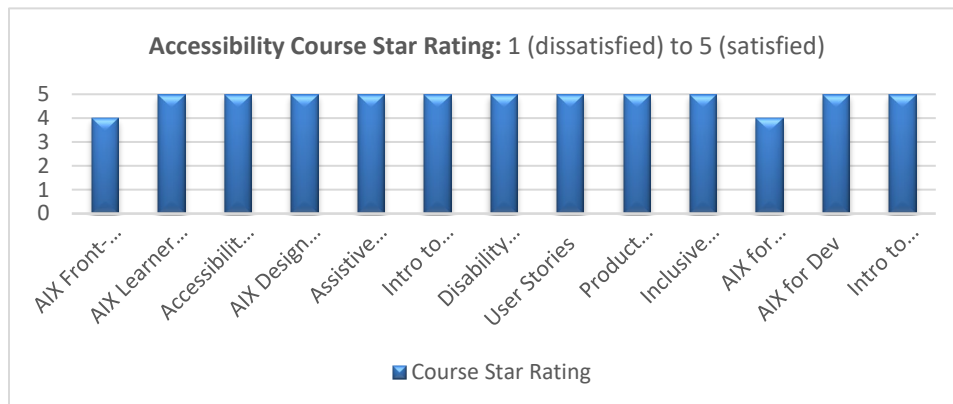

Figure 2 – Accessibility course star rating

The courses included in this data were released between November 2021 and May 2022 with a completion date of September 2022 for all learners assigned each course.

6.1.2. What exists now that didn't before?

One of the questions posed earlier in this paper was: **What change do we want to see because of these [inclusive] learning experiences?**

As we look towards the future, it's important to understand how the culture of our company has evolved since our original training content for Accessibility was launched in 2019. We have a seen an increase in the number of programs and initiatives with a focus on accessibility and inclusion as more individuals have developed an inclusive mindset. They are also a direct result of the partnerships developed between the Comcast Accessibility Team and ULearn. This includes, but is not limited to:

1. The Innovation for Inclusion of Diversity and Accessibility conference, presented by Comcast Labs Connect and includes a partnership between ULearn and the Comcast Accessibility team. This conference focuses on the collaboration, culture and experiences of diverse teams driving the growth of accessible technology.
2. A Community of Practice, comprised of learning professionals and accessibility champions, this group comes together to discuss best practices in creating inclusive and accessible experiences for all
3. Focused effort between Accessibility, ULearn, leadership, and the business on implementing accessibility standards and practices
4. Peer learning and speaker series offerings with a focus on accessibility content

6.2. Value to business

By focusing on innovation with existing tools, we were able to create content using our own internal design and development resources. This gave our team control over the project timeline, cost, and to the best of our ability, the accessibility standards built in to the training created. We saved money by using existing platforms. Engaging a third party vendor to create the content can sometimes cost tens of thousands of dollars per eLearning module.

As is the case with most businesses, one of Comcast's most valuable resources is time. By using our own design teams we created accessible content without the extended lead times needed to secure contracts or onboard the right tools. As many know too well, the procurement process is one that can often take many month to complete.

7. Where do we go from here?

The experiences outlined in this paper have provided a better understanding of what we need to do in the future to create inclusive and valuable learning experiences. Our goal should be to create content that empowers our workforce without having to retrofit solutions using technology that isn't fully accessible.

7.1. Inclusive tools and vendors

The work we've already done to create inclusive training content provides a better understanding of what we need to do in the future to avoid retrofitting solutions.

This starts with the vendors we partner with and the tools we use to create content. Moving forward we need to ensure every vendor we engage with follows our own accessibility standards and policies,

including the Web Content Accessibility Guidelines. Over time, and with a commitment to changing our mindset and culture to one of inclusion, it should become apparent that we're working with a vendor that is compliant or inclusive. This standard should be met by any existing vendor or any new partnership we take on, starting immediately.

As discussed earlier, the tools and platforms we use are instrumental in creating accessible learning experiences for our workforce.

7.2. Learning design standards

Earlier in this paper we mentioned the five ULearn L&D design standards included in each of our learning products. As we move towards the future, it's important to note that our need for inclusion and standards are constantly evolving. We need to be open to that change, constantly re-evaluating our standards while providing our workforce the resources needed to feel confident in applying these standards. Our ULearn design team is currently working on updated design standards to align with newly implemented Accessibility Policies and Guidelines launched at Comcast this year. This includes PDF Accessibility standards, Office Documents (Word, Excel, PowerPoint, and Email) Accessibility Standards, and Instructor led guidelines for inclusive facilitation (both in-person and virtual), to name a few. ULearn L&D, in partnership with the Comcast Accessibility team, are launching these standards in 2022 with the goal of 100% compliance by 2024 for anyone creating content, including our instructional designers, developers and product managers.

7.3. A mindset established through the lens of the AIX Principles

Accessibility training at Comcast has two main objectives. First, teach individuals the skills they need to build accessibility into all they do. Second, the training must change the learner's mindset so that they are receptive to the content and understand why it's important. With the mindset established through the lens of the AIX Principles, individuals in any role can readily assess the inclusivity of their work and why building inclusive products or experiences benefits everyone.

The guidelines for living up to the AIX Principles are found in WCAG for web content, in the ADA for the built environment, in Universal Design for Learning Principles, and in the associated best practices for executing on each of those. Success looks like:

INTEGRAL
"Inclusion and Accessibility are in our company's DNA."
Example: Your company has established a policy on inclusive media, has tools and resources in place to make it easy to make content inclusive and accessible, and has training in place to enable employees to reliably adhere to that policy.

RESONANT
"Diversity is represented in our content, products and workplace."
Example: inclusive media guidelines call for diversity in casting and using inclusive language in scripting and copy. Customers and employees see their culture reflected in our content and messages.

EQUITABLE
"The experience accommodates the customer, not the reverse."
Media player controls include closed captions, audio description and alternate languages. Content includes those options across all asset versions at time of delivery.

SITUATIONAL
"Combinations of where and how users do things are endless."
Experiences are evaluated across many display types and designed and built to work well on small as well as large screens.

CONSISTENT
"Respect the user's expectations and knowledge."
Media player controls use expected conventions. Player options are found in the same location and identified with the same iconography across platforms.

VALUABLE
"Unnecessary features can break the experience."
Media player controls are not cluttered with niche options, e.g. too many caption font options, including illegible ones.

8. Conclusion

As we mentioned in the beginning, the ADKAR model states that "organizational change can only happen when individuals change" (Hiatt, 2006) This became apparent through the development and launch of the AIX learning journeys as we discovered more people than ever before are open to embracing an inclusive mindset. As we see more individual champions of accessibility within the cable-tech industry, there's an opportunity to continue the conversations that will drive change within our industry. With the support of our leaders and peers, we can engage with the resources available and proactively create inclusive experiences. This includes a keen focus on how the Comcast Accessibility and ULearn Learning & Development teams can partner together to develop our workforce, how we can lead by example and build upon the accessibility standards we have already implemented. We can empower our learners and each other by being intentional in framing disability within the dimensions of diversity, basing our work on the Accessibility and Inclusive Experiences principles, and making training actionable and accessible for all.

Abbreviations

AIX	Accessibility and Inclusive Experiences
ULearn	Comcast Learning and Development Department
WCAG	Web Content Accessibility Guidelines
ADA	Americans with Disabilities Act
ADKAR	Awareness, Desire, Knowledge, Ability and Reinforcement
L&D	Learning and Development
WYSIWYG	What you see is what you get

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