Universal Design in the Restaurant Industry:

Bridging the Gap Between ADA Guidelines and Customer Needs

By

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Abstract

This thesis addresses the issue of accessibility in the restaurant industry beyond the minimal requirements of the Americans with Disabilities Act. Even with laws in place that enforce accessibility, recent studies have shown that two-thirds of disabled people who dine out experience obstacles. The methods for this study involved creating a questionnaire asking participants about their needs within a restaurant setting. Using this data as a foundation for observing dining facilities, the second part of the study involved auditing restaurants in a midsize city in the Southeast United States. Questionnaire participants reported that they encountered inaccessible areas when dining out, even though the audited restaurants were generally in compliance with ADA guidelines. This reflects a gap between ADA guidelines and customers' needs. The answer to this gap is to put in place design features supported by the Universal Design Theory, which supports creating an accessible place for everyone, no matter the extent of their physical disabilities.

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Definitions According to the Americans with Disabilities Act

Accessibility-The ability to access something. i.e use, enter, reach.

Architectural barriers-Obstacles or other features in the built environment that impede individuals with disabilities from gaining full and complete access to the goods and services being provided.

Certification of equivalency-A final certification that a State or local building code meets or exceeds the minimum requirements of the Americans with Disabilities Act (ADA) Title III for accessibility and usability of facilities covered by that Title.

Disability-A physical or mental impairment that substantially limits one or more major life activities, a record of such an impairment, or being regarded as having such an impairment.

Impairment-A physical impairment is a physiological disorder or condition, cosmetic disfigurement or anatomical loss affecting one or more of the body systems. A mental impairment is any mental or psychological disorder.

Individual with a Disability-A person who has a physical or mental impairment that substantially limits one or more of the major life activities of such individual or a record of such an impairment or is regarded as having such an impairment.

Major life activity-An activity that a person can perform with little or no difficulty.

Path of travel-A continuous, unobstructed way of pedestrian passage

Universal Design Theory-Design of an environment so that it can be accessed by all people regardless of their age, size, ability or disability

Chapter I: Introduction

Accessibility in the restaurant industry is a topic few able-bodied people consider when choosing restaurants at which to eat. However, when someone has a mobility disability, or wishes to dine out with a disabled friend, their restaurant options are limited. In 2015, the Open Doors Organization conducted an online study asking a participant pool of 1,291 adults who had some form of disability to answer questions regarding restaurant accessibility. Almost two-thirds of the participants responded that they had experienced obstacles in a recent restaurant experience (U.S. Department of Justice, 2015).

The issue of accessibility was addressed in 1990 when President George H. Bush signed into law the Americans with Disabilities Act, known as the ADA. Its purpose was to ensure that people with disabilities were not discriminated against. The ADA defines a disabled person as a person living with "a physical or mental impairment that substantially limits one or more major life activities" (ADA, 2010). Over the past three decades, there have been revisions to sections of the ADA. Title 3, *Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities*, was revised in 2010. It provides rules and guidelines for public businesses and facilities, which includes restaurants. Companies are required to comply with these guidelines, but there is no ongoing governing body to audit companies to assess or enforce ADA compliance. Instead, if a customer with a disability is dissatisfied with a facility's accessibility, they would be required to sue the company for resolution. This burdens

people with disabilities who may lack ability, time, or resources to hire an attorney and sue a business.

Even though the ADA has improved the standards of accessibility in restaurants, there are still areas that remain inaccessible, whether due to physical barriers or obstacles caused by a lack of training. David Friedman runs a blog for disability advocacy which discusses accessible restaurants in New York City. He wrote, “Often I’d arrive at a restaurant with the entrance at the bottom of stairs; sometimes the entrance was too small for my wheelchair; occasionally the restaurant was accessible, but the restrooms weren’t and/or the tables were too low to get my wheelchair under them” (Phillips, 2016).

These are all physical barriers, but other obstacles can be caused due to a lack of training or understanding of what accessibility entails. For example, a writer for the *New York Times* called a restaurant and the manager assured him it was accessible. When he arrived, his wheelchair-bound friend was shown to an elevator to access the dining room while avoiding a flight of stairs. However, when the elevator doors opened to allow the disabled friend access to the dining room, he found himself in a corner, “surrounded by brooms, mops and cleaning supplies” (Bruni, 2007). The employees had not realized that a wheelchair-bound guest could not exit the elevator because the serving staff stored their cleaning supplies next to the elevator without leaving a clear travel path.

Small issues like these are enough to impede accessibility, which shows that even though the ADA has been helpful, it is not adequate to serve the varied needs of the current population in the United States. It has been in effect for 31 years, yet studies as recent as 2015 still show that restaurants are not fully accessible (U.S. Department of

Justice, 2015). John Phillips, a journalist of 37 years currently writing for Wheel:Life a disability blog, wrote, “85 percent of the disability community won’t go out to eat, due to restaurants not being accessible, and the anxiety created when people fear how they’ll be treated or perceived” (Wheel: Life, 2016). According to the Center for Disease Control, one quarter of American adults live with a disability and one out of seven lives with a mobility limitation (Center for Disease Control, 2020). This high number is caused by several factors, one of which is the aging of the United States population. The United States Census Bureau states that the American population over the age of 65 has grown by 34% in the past decade (United States Census Bureau, 2020). As people age, they tend to have increased health issues. In addition to those with long term needs, people with short-term mobility problems also need increased accessibility. These factors are sufficient cause for an updated restaurant design, beyond merely meeting requirements of the ADA. The answer to this problem is to put in place design features supported by the Universal Design Theory, which supports creating an accessible place for everyone, no matter the extent of their physical disabilities.

According to the National Disability Authority based in Northern Ireland, “Universal Design is the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability” (National Disability Authority, 2020). The University of Buffalo in New York has a School of Architecture and Planning with a Center for Inclusive Design which shares information concerning Universal Design (University of

Buffalo, 2017). They describe Universal Design as being comprised of seven broad principles, which are highlighted in Figure 1.

Figure I	Seven Principles of Universal Design from the University of Buffalo 2017
Principal 1	The design should have equitable use by not disadvantaging or stigmatizing any group of users.
Principle 2	The design should be flexible and accommodate a wide range of individual preferences and abilities.
Principle 3	The design should be easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
Principle 4	The design should have perceptible information that communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
Principle 5	The design should have low tolerance for error by minimizing hazards and the adverse consequences of accidental or unintended actions.
Principle 6	The design should require low or minimal physical effort by efficient and comfortable use with a minimum of fatigue.
Principle 7	The design should be large enough and have adequate space for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility.

Few current articles exist concerning restaurants built or modified around the elements of Universal Design. However, in the hotel industry, Hilton partnered with the University of Buffalo to create a newly designed Hampton Inn hotel in July of 2020, which became the first hotel in the North American continent to be built based off this theory (Watson, 2020).

Danise Levine is the assistant director at the University of Buffalo Center for Inclusive Design and Environmental Access, also known as IDEA. The employees at the

center have varying specialties from architecture, urban planning, behavioral psychology, gerontology, occupational therapy, and industrial engineering. They work together to develop plans to implement universal design theory elements in various areas of public life. As both an architect and aging in place specialist, Levine leads the center in creating modification plans. Levine was interviewed by Rebecca Langbein from the Universal Design organization in 2020. During the interview, Levine said her team has "developed over 700 evidence-based universal design strategies that could basically be incorporated into any building design project" (Langbein, 2020).

The center offers a website and app that facility owners of any public building can log into and compare aspects of their building's design to fully accessible examples. Additionally, if someone wants their building to be certified in universal design, then the IDEA Center will send out a specialist who can audit a facility according to a universal design checklist that they have created. The auditor will offer advice concerning how to increase accessibility for that specific building. Finally, once a facility has passed this audit, they can become officially certified as a universal design building.

Concerning this program, Levine said, "When we do universal design plans, we assume that the building is already accessible because that's required by law. We want to go beyond that. Some of the things we can change is to provide features that blend into the overall environment and seamlessly integrate into the overall design" (Langbein, 2020). If restaurant industry leaders followed these beginning footsteps from the hotel industry and implemented similar accessibility changes within restaurants, then the industry could serve customers with a broader range of accessibility needs.

Although businesses in the restaurant industry generally comply with Title 3 of the Americans with Disabilities Act, they remain inadequately accessible to guests with mobility issues as shown earlier by the 2015 study by the Open Doors Organization. When the majority of disabled guests can still say they experience obstacles when dining out, then there is a gap between the ADA guidelines and the needs of disabled customers. This gap demonstrates two things: either (a) the ADA needs to be enforced or, (b) the restaurant industry needs to go beyond ADA requirements to truly be accessible. The response to this gap may be to design restaurants based on the elements of the Universal Design Theory, which supports creating an accessible place for everyone, no matter the extent of their physical disabilities. This study examines this gap by comparing consumers' accessibility needs with existing dining facilities to help determine if new standards are necessary to increase inclusivity.

Chapter II: Literature Review

A-Restaurant Accessibility

Accessibility within restaurants and the hospitality industry is a broad topic that has been researched for academic theses and published in journals for tourism and hospitality management (Journal of Tourism Research, 2016). It also been discussed by managers working in the field at conferences and training meetings (Rosetti, 2009). However, there is a literature gap when researching the application of the seven broad elements of the Universal Design Theory within the restaurant industry. There are articles concerning Universal Design in hotels due to a partnership between Hilton Hotels and the University of Buffalo School of Architecture and Planning, that appeared after Hilton officially opened the first "fully accessible" hotel in the North American continent (Watson, 2020).

Restaurant accessibility began to be widely addressed after the Americans with Disabilities Act, ADA, was signed into law in 1990. Title 3 of this law handles accessibility in public facilities, which includes restaurants. Several studies beginning in the 1990's looked at various areas within restaurants to determine whether or not the restaurants had transitioned into compliance with the ADA. The *Journal of Occupational Therapy* published an article in 1993, that researched the percentages of restaurants that had transitioned into accessible facilities after the 1990 ADA law was signed (McClain et al., 1993). During this study, only 53% percent of the 120 restaurants surveyed were actually accessible to wheelchairs (McClain et al., 1993). After an initial interest in

accessibility, the available research articles seemed to wane until a new wave of published research occurred during the 2010 updates to the Americans with Disability Act. The Hospitality Industry Products and Design Expo in 2009 hosted several discussions and presentations of newly published articles concerning restaurant accessibility in preparation for the new guidelines and changes that would result from the 2010 updated ADA (Rosetti, 2009).

Since the ADA was updated, several broad topics within the discussion of accessibility have emerged. The first topic is that having a disability does affect people's dining choices and that the ADA was not enough to actually make restaurants accessible for everyone. In a thesis from 2014 titled "Effect of Accessibility Information on Restaurant Selection of Consumers with Disabilities," author Rachel Baumann examined how information concerning restaurant accessibility affects the diversity of diners' choices. Baumann found that previous articles and surveys had demonstrated that customers with disabilities have fewer social activities to engage in, one of which was dining out (Baumann, 2014). The author then designed a survey that compared disabled and non-disabled people's choices when eating out. The results from this study demonstrated that disabled customers tended to choose a restaurant they were familiar with, rather than trying out a new restaurant that they had not previously visited (Baumann, 2014). Disabled customers were more confident in dining out at a restaurant where they had previously confirmed its accessibility.

Other authors and studies also highlighted and confirmed the effect of disabled people becoming repeat customers at the same restaurant or simply avoiding dining out.

John Phillips, a journalist of 37 years currently writing for Wheel:Life, wrote, “85 percent of the disability community won’t go out to eat, due to restaurants not being accessible, and the anxiety created when people fear how they’ll be treated or perceived” (Phillips, 2016). Sources like these show an underlying factor that feeling comfortable and accepted at the dining location was important to guests. Baumann’s research demonstrated that guests with disabilities became repeat customers at the few restaurants they trusted to be accessible, while Phillips’ article showed that the majority of disabled people would rather forgo dining out than risk feeling anxious over their dining experience.

The second topic that emerged is that the hospitality industry, which includes restaurants, must be inclusive. Stephen Cluskey, CEO and co-founder of Mobility Mojo an app that helps disabled guests find accessible hospitality locations, discussed this during a 2017 TedTalk. During this presentation, Cluskey discusses the hospitality industry as a world that needs to be accessible, so that it can be inclusive to everyone (Cluskey, 2017). Another article that also supported this is “Viewpoints on Inclusion in Tourism-From Accessible Tourism to Accessible Hospitality,” which demonstrated a variety of viewpoints and benefits concerning increasing inclusiveness within hospitality for guests with disabilities. Many customers with disabilities have been provided inconsiderate service whether by inaccessible facilities or by hospitality employees who do not understand how to assist or even ask whether guests require assistance (Harju-Myllyaho and Jutila, 2016). This issue goes beyond guests who are legally disabled because it includes seniors with limited abilities, those with short term physical ailments

and people who simply need more assistance like parents with strollers (Harju-Myllyaho and Jutila, 2016). The authors Harju and Jutila encourage disability inclusiveness by not only meeting minimal ADA requirements, but purposefully catering towards guests with disabilities and extra needs.

The third topic that emerged is the problem of technological accessibility within the restaurant and hospitality industry. This thesis is researching mobility and physical accessibility, but technological access also affects mobility. The article, "How Technology Can Enable Restaurant Accessibility and Inclusiveness," points out that 61 million Americans identify as having a disability; this is approximately one quarter of the entire United States population (Miller, 2019). However, as stated earlier, only one seventh of the population has mobility disabilities. When extrapolated, this could mean that a seventh of a restaurant's customers might need extra accommodations, though that will likely not happen due to disabled guests not dining obut as often as non-disabled guests (Phillips, 2016). However, the fact that such a high portion of the US population is disabled leads to the question of whether restaurant managers, when failing to make their restaurants accessible, are missing out on a large portion of the population that could be served. Furthermore, while discussing the need for kiosks and technological sources to help people with vision or hearing problems, there is a need to keep these resources out of the clear pathways of disabled guests. Kiosks, whether for able-bodied guests or customers with vision of hearing impairments, must be placed in highly visible locations. However, they cannot block the pathways of customers with mobility issues (Miller, 2019). This sub-topic was also discussed by Barney Wolf who writes for the QSR,

"Quick Service Restaurants," Magazine. Wolf discussed ADA requirements within the scope of restaurants. He pointed out several areas which modern managers have to consider. For example, many restaurants have been sued for not being technologically accessible, so managers have reacted by installing kiosks (Miller, 2019). However, these new kiosks must follow ADA height rules and remain out of the clear pathways for guests with mobility restrictions.

The fourth and final main topic that emerged is the discussion of designing restaurants and buildings to meet the needs of people with disabilities, instead of building facilities for able-bodied people and then adapting them for customers with disabilities. This topic led me towards the Universal Design theory and its seven elements to improve accessibility. The article "Accessibility is Hospitality" was written by two entrepreneurs in the food industry. They discussed how locating accessible restaurants for their yearly committee meetings proved difficult and that instead of stigmatizing solutions and offering separate services to people with disabilities, countries should focus on using the Universal Design model (Mulchandani, Sheth and Shah, 2020). This design focuses on constructing fully accessible buildings for everyone, not just the narrow population of non-disabled people; people with disabilities are not the only ones who would benefit from accessibility. Accessibility would help elderly people, pregnant women, parents with strollers, and others who have physical issues but are not legally disabled. Elise Roy, a disability rights lawyer who is now deaf, presented at TEDx Mid-Atlantic in 2016. She had a unique position when presenting on this topic because she is knowledgeable on the laws regarding disability requirements. Additionally, she has lived as an able-bodied

person before living with disabilities as her deafness worsened, which provided the opportunity for her to personally evaluate whether the ADA requirements are enough for her as a guest. Roy worked in a community of 300 disabled people in Haiti trying to solve design issues. Her conclusion was that buildings must be designed for people with disabilities instead of only for "normal" people. When designers have created facilities for people with disabilities in the past, able-bodied people also appreciated the accessibility (Roy, 2016).

These previous studies and resources indicate that the restaurant industry, while making strides to increase accessibility, has still not done enough. There are still restaurants that someone could not enter or could not be served at due to the restaurant facilities not being fully accessible and shows why it is important to reconsider facility designs. This thesis project aims to begin filling the research gap between restaurant accessibility and the Universal Design theory through analyzing current needs of the disabled that are not met and comparing those needs and basic ADA standards to current restaurant facilities.

B-Universal Design Theory

In the United States, the term "Universal Design" was coined and spread by architect Ronald Mace (National Disability Authority, 2020). Dr. Mace contracted polio at the age of nine which left him wheelchair bound the remainder of his life. He studied architecture at the University of North Carolina where he encountered many barriers to accessibility. Due to these experiences, he became a proponent of the disability rights movement which spread across the globe in the 1980's-1990's, leading many countries to pass legislation mandating that buildings have some degree of accessibility. Mace also became recognized nationally and internationally as an architect and designer. After helping pass the Americans with Disabilities Act of 1990, he gathered a team of architects, engineers, and designers at the University of North Carolina to create a more accessible plan. Between 1989 and 1992, Mace established the Center for Universal Design at the Raleigh campus of the university (Burke, 2016). Here, he and his group of engineers came up with the Universal Design Theory.

Over the past three decades since the ADA and the Universal Design Theory began, some aspects of Ronald Mace's work have become standardized in the United States. For example, having curb cuts on sidewalks to allow people in wheelchairs to cross streets was an invention by Ronald Mace. Now, most sidewalks which allow pedestrians to cross a street are accessible to wheelchairs. Another idea which came out of Universal Design is automatic doors which open when a sensor detects movement or by a button placed low enough to be reached by a wheelchair user. According to the Center for Universal Design in Education, these changes benefit people with disabilities,

elderly people, parents with baby strollers, delivery workers, and many others (Center for Universal Design in Education, 2019). The Center for an Accessible Society addresses the accessibility problem succinctly by writing, “most people will experience some form of disability, either permanent or temporary, over the course of their lives” (Center for an Accessible Society, 2020).

According to the National Disability Authority, the Universal Design Theory is described as “the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people regardless of their age, size, ability or disability” (National Disability Authority, 2020). This is an important theory because the majority of our architecture is designed for younger people without health problems, which does not accurately reflect American demographics. Typically, a building is built and given a certificate of equivalency, which means it has met the ADA requirements and local building codes. However, there is no ongoing auditing system to ensure accessibility in non-structural areas. For example, restaurant dining room tables can be moved, blocking accessible wheelchair pathways. Temporary items such as kiosk stands, or even wet floor signs can block paths. A seemingly insignificant detail can be enough to inhibit customers with mobility disabilities from accessing restaurant features. The answer to this problem is to incorporate elements of the Universal Design Theory which approaches the concept of accessibility from a different perspective from former accessibility plans which attempted to add accessible features to a non-accessible building. Universal Design pioneers the idea that structures should be designed and built so that they are accessible to everyone, no matter the extent of their physical limitations. I

have not found any articles discussing utilizing elements of the Universal Design Theory in restaurants, despite articles discussing this within the hotel industry.

The idea behind the Universal Design Theory has sprung up in several countries under different names, such as ‘design for all,’ ‘barrier free design,’ and ‘universal design.’ In 2019, the Center for Universal Design in Education defined accessible design as a “design process in which the needs of people with disabilities are specifically considered” (Center for Universal Design in Education, 2019). This is not quite the same as Universal Design because this could, for example, be adding a ramp or accessible door to an existing building, whereas Universal Design is defined by the same group as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Center for Universal Design in Education, 2019)**.** The key point is that Universal Design is about focusing the entire construction around people with a range of physical abilities, instead of attempting to make a facility accessible post construction.

The answer to the problem of inaccessibility in restaurants is not merely about creating a way for people with disabilities to interact in an environment built for able-bodied people. The answer is broader than this. If restaurants are designed to be inclusive to everyone, no matter the extent of their physical limitations, these facilities will be serving the true population of people who have a wide range of physical needs.

Even though Universal Design would increase accessibility for everyone, there are three primary groups who would specifically benefit. The first group is the portion of the American population who has a disability. According to the Center for Disease

Control, CDC, approximately one quarter of American adults live with a disability and one out of every seven lives with a mobility impairment (CDC, 2020). The ADA defines a disabled person as a person living with "a physical or mental impairment that substantially limits one or more major life activities" (ADA, 2010). Even though I was specifically assessing mobility disabilities, the Universal Design Theory would assist people with other disabilities. For example, ensuring wide and clear paths for wheelchairs would also benefit those with vision issues.

The elderly population is the second group that would benefit from the Universal Design Theory. The average American age has risen due the wave of babies born after World War II, which is now at or past retirement age. The United States Census Bureau reports that the American population over the age of 65 has grown by 34% in the past decade (United States Census Bureau, 2020). As our population ages, there will be more people with limited abilities, even if they might not have a legally recognized disability. According to the United Nations Department of Economic and Social Affairs Disability "More than 46 percent of older persons- those aged 60 years and over-have disabilities" (United Nations, 2015).

In addition to those with long term needs, people who have short-term mobility issues also need increased accessibility. For example, if someone is in a car accident and must temporarily use wheelchairs or crutches, they would benefit from increased accessibility. This also applies to people who have children in strollers, because they use ramps and other accessibility features intended for people with disabilities. Disability is a common aspect of humanity. The World Health Organization (WHO) has a section for

disability on their website which says that “Almost everyone will temporarily or permanently experience disability at some point in their life. Over one billion people – about 15% of the global population – live with some form of disability and this number is increasing” (WHO, 2021). This is a significant portion of the US population that needs some form of increased accessibility.

There are seven main principles in the Universal Design Theory, according to the University of Buffalo’s School of Architecture and Design. Some elements may seem to already be installed in restaurants, yet a study from Open Doors from 2015 still found that approximately 800 people with disabilities had recently encountered obstacles in restaurants (U.S. Department of Justice, 2015). Further studies would need to audit which of these Universal Design elements would increase accessibility and be the most useful.

The first Universal Design theory element is that a design should have equitable use, described by the University of Buffalo as a “design that does not disadvantage or stigmatize any group of users” (2020). This is an aspect of accessibility that is missing even with the guidelines in place by the ADA. Commonly, restaurants offer separate entrances or seating areas for guests with mobility issues. However, this still stigmatizes people with disabilities. An example was illustrated in the introduction when a disabled guest who was shown to an elevator to access a lower dining room was prevented from use based on improper employee training. The elevator opened in a corner where dining room staff stored their mops, buckets and cleaning supplies (Bruni, 2007). Although this incident occurred in 2007, it was still seventeen years after the ADA was passed. That

restaurant was supposedly accessible. This first element of Universal Design would contribute to highlighting errors such as this.

The second principle is that a design should be flexible and "accommodate a wide range of individual preferences and abilities" (University of Buffalo, 2020). This principle would be helpful in restaurant dining rooms. There can be booths and tables with empty spaces for guests with wheelchairs. Restaurants can also spread tables farther apart to provide clear pathways. One major improvement in restaurant dining rooms to increase accessibility would be to push the back of dining room booths farther from the table. This would assist guests who prefer a booth but who cannot easily maneuver themselves into small booth spaces and would satisfy the second design principle.

The third principle of Universal Design is that a design should be simple to use and based on intuition. For example, "Use of the design should be easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level" (University of Buffalo, 2020). This principle could be directly applied to parking lots at restaurants. Parking spaces should be sufficiently wide for the guest's vehicle, as well as include an empty area next to it to unload a wheelchair. There should be easily understood and clearly written signs directing guests to these spots. These parking slots should be closest to the accessible entrance. Restaurants with eleven or less parking spaces are not required by the ADA to have specific parking for disabled guests, but if they do, they should be clearly marked with understandable signage, fulfilling the third principle.

The fourth principle is that a design should have perceptible information. “The design should communicate necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities” (University of Buffalo, 2020). This principle does not apply directly to this research focusing on mobility, however, when extra devices are placed to assist guests with sensory impairments, these should not impede guests with mobility disabilities.

The fifth principle is that a design should have low tolerance for error. According to the University of Buffalo, “The design must minimize hazards and the adverse consequences of accidental or unintended actions” (2020). This could apply to many areas within a restaurant. One main idea is that restaurant owners and managers need to be selective when deciding what flooring to use. The ADA provides suggestions on what types of floorings and carpets should be used in dining rooms. For instance, an issue could present through carpets curling up at the edges causing a dangerous situation for mobility impairment. Guests who need assisted walking and have poor balance, yet are not wheelchair bound, can trip over seemingly minor issues. This can impede accessibility.

The sixth principle is that a design should require low or minimal physical effort. “The design needs to be used efficiently and comfortably and with a minimum of fatigue” (University of Buffalo, 2020). In a 2009 study of over 1,300 travelers with disabilities, Rosetti found that more than 36 percent of the respondents had encountered doors that were too heavy to operate. Many restaurants continue to lack automated door systems for

guests with disabilities. If the restaurant industry increased the use of doors that require minimal effort to open, they would drastically be assisting these guests.

The seventh and last principle is that a design should be large enough and have adequate space for approach and use. According to the University of Buffalo, "The appropriate size and space must be provided for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility" (2020). This principle is specifically important in restrooms. In the study by Rosetti, 64 percent responded that they had encountered barriers in restaurants (2009). Restroom size and usability issues were in the top three listed barriers that guests had encountered.

Restaurant managers and owners might be hesitant to increase accessibility in their facilities due to increased costs, because modifying the way restaurants are constructed would be expensive and might lower profit. For example, spreading tables farther apart to allow wheelchairs room to maneuver would mean less seating area in dining rooms. In turn, this could lead to decreased sales. However, from a financial standpoint, the costs of making restaurants accessible could be offset by the increased percentage of guests that can be served. The American Institute for Research published a report in 2018 discussing the purchasing power of working-age adults in the United States who have disabilities. The report listed that among the disabled population, 22 million disabled Americans are between the ages of 16 and 64 (American Institute for Research, 2018). This working age population with disabilities has "$490 billion dollars in disposable income, which means the amount of money that people with disabilities have to spend on everyday necessities is significant" (American Institute for Research,

2018). Also, when a disabled person dines out, they would likely be with friends and family members who do not have disabilities. This would result in restaurants gaining business from disabled guests as well as that of their families and friends.

Chapter III: Methodology

The methodology for this thesis project included two main segments. First, after receiving approval from the Institutional Review Board at Middle Tennessee State University, I created and posted a survey questionnaire asking fellow members of my social media disability support groups whether restaurants are accessible enough for them or not. I created this survey via Qualtrics. The survey first asked participants to provide demographic data and information concerning their mobility disabilities. There were then questions regarding their dining habits. Finally, there were three open-ended questions which asked respondents these questions:

- When you eat at a restaurant, what are three things restaurants do well that assist with your mobility disability?
- When you eat at a restaurant, what are three things restaurants do poorly that make challenges for your mobility disability?
- What changes would you like to see for better mobility access/Is there anything else you would like to share?

The full survey is listed in the appendix. After completing the survey, it was shared via online social media platforms for people with ALS, Spina Bifida, and other mobility impairments. After my own brother's terminal illness diagnosis, I joined multiple online support groups within the United States, some of which post accessible vacation spots, stores, or restaurants that individuals in the support group have visited. These online support groups provided responses from different states, of various ages and

have differing abilities. I then completed a thematic analysis of the responses to see what areas of restaurants tend to cause accessibility issues.

The second portion of my methodology involved visiting and auditing restaurants in the Murfreesboro area. Included in the appendix section of this thesis proposal is a checklist based on the 2010 guidelines for restaurants from the Title 3 portion of the ADA. This checklist contains twenty-seven questions which cover various areas of restaurants such as parking lot requirements, doorway width, dining room walkability, and restroom measurements. During May, June, and July of 2021, I visited twenty quick-service and fast-casual restaurants in the Murfreesboro area and audited them according to the checklist. I also specifically checked the areas that respondents to the questionnaire said were problematic to see whether these areas are compliant with the ADA but remain inaccessible to guests with disabilities.

I did not inform the managers of these restaurants that I was auditing them because I only checked public areas which were already open to all guests. This helped to ensure that the data I gathered through my audits were correct, relevant, and an honest representation of how accessible the restaurants were by preventing manager intervention. While the data collected specified each restaurant, the results are reported anonymously. After surveying these restaurants, I completed a second thematic analyses of the results and specifically looked at the following four criteria:

- Between quick-service and fast casual restaurants, which group was more in compliance with the ADA?

- Which aspects of the ADA were most closely followed within the restaurant facilities?
- Which aspects of the ADA were least and most in compliance?
- Overall, what else needed to be changed to increase accessibility based on the needs indicated from the online survey participants?

The differences between quick service restaurants and fast casual restaurants have been blurred due to the coronavirus pandemic (Fainblum, 2020). Fainblum, a marketing coordinator for TouchBistro, describes quick service restaurants, such as Wendy's, McDonald's, Burger King, and Taco Bell, as "emphasizing off-premise dining and typically offering drive-thru service with a focus on value and speed over quality" (Fainblum, 2020). Fast casual restaurants, such as Panera Bread, McAlister's Deli, Jason's Deli, and Subway, were defined as those whose "main distinctions are a higher price point in exchange for better quality food, more customizations, and an elevated on-premise dining experience" (Fainblum, 2020). Some of these restaurants have modified their styles due to Covid-19, but I could still audit them because their dining rooms had reopened. However, I expected certain areas such as dining rooms seating areas to be more accessible than they were pre-covid as tables and chairs were spread farther apart due to coronavirus concerns.

While completing the data collection from these restaurants, I wrote several sections for my thesis. One section discussed the ADA and how it applies to the restaurant industry. This section also included statistics on the portions of the American population that need increased accessibility such as those with mobility disabilities,

temporary mobility issues, and limited abilities due to aging. This last category will be important due to the current aging of the United States population.

The second section of my thesis discussed the Universal Design Theory and how it could be used to increase restaurant accessibility. This section also includes background information of Universal Design, such as how it was created, how it has been utilized in communities in the United States, and its current use in the hotel industry. There has been limited use or application of the Universal Design theory's elements in the restaurant industry, so this section discusses how its seven elements could be applied to increase accessibility.

The third and final section of my thesis outlines the results of my restaurant audit in Murfreesboro. It discusses the areas from each restaurant that need increased accessibility beyond what the ADA requires according to the responses received during the questionnaire process. This could be restaurants having doors too heavy for guests, slippery dining room floors, or inaccessible pathways within the dining room due to movable furniture.

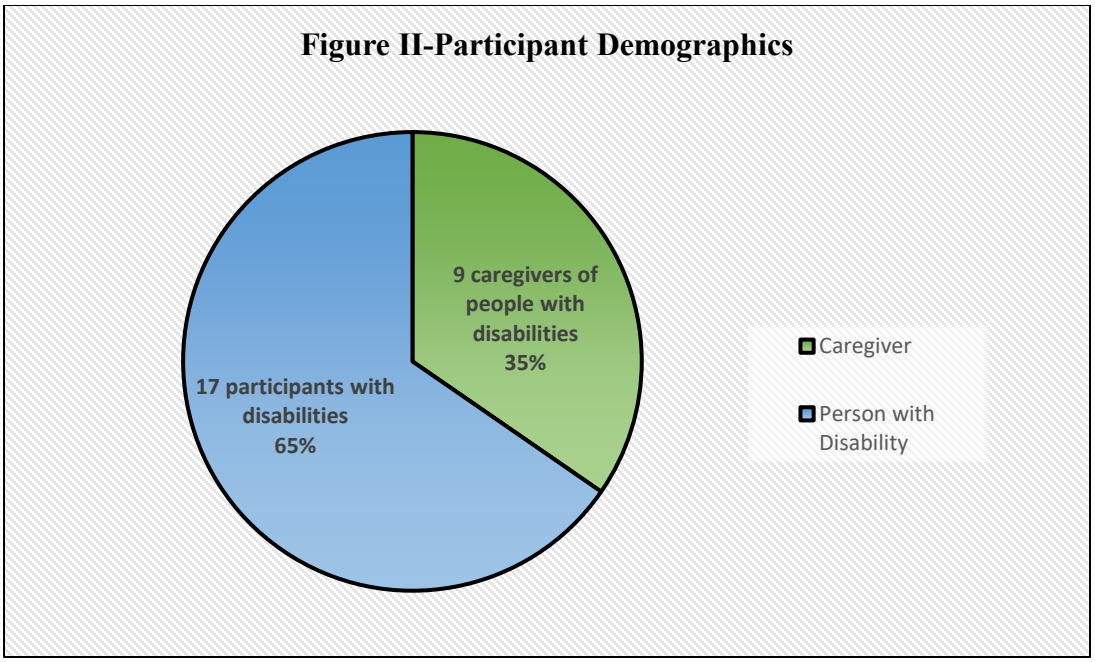
After the data collection was complete, I analyzed the questionnaire responses, and the restaurant data results to discover whether restaurants are in compliance with the ADA. If they were not in compliance with the ADA, the solution would be to increase and enforce ADA guidelines. If the restaurants were in compliance, but guests say they are not meeting their accessibility needs, then restaurants need to go beyond ADA guidelines to solve this issue.

Chapter IV: Results

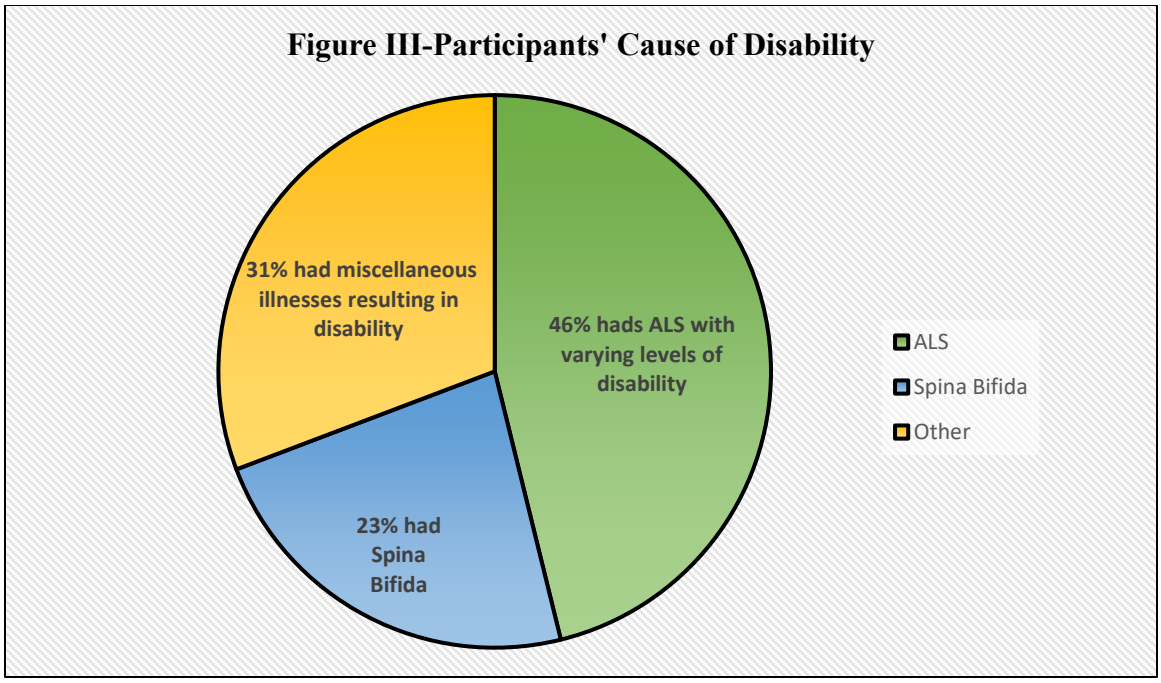
A-Online Survey Results

The survey from part one received a total of forty-five responses, of which only twenty-six contained useful or relevant data. The remaining nineteen were either incomplete surveys or the participants did not meet the questionnaire criteria. All twenty-six of the participants were Caucasian. Fourteen of the respondents were women, eleven were men, and one choose not to answer. The age of the twenty-six participants ranged from age categories of twenty-five to seventy-four, in ten-year increments. The most common response was age thirty-five to forty-four, which nine of the participants selected. One respondent did not provide their age.

The first survey question asked whether the participant had a disability that restricted mobility or if they were a caregiver to someone with a mobility disability. Of the twenty-six respondents, seventeen had mobility impairments and nine were caregivers. The responses from the nine caregivers were mostly from those who had family members with amyotrophic lateral sclerosis, also known as ALS. This information is displayed in Figure 2-Participant Demographics, which is on the following page.

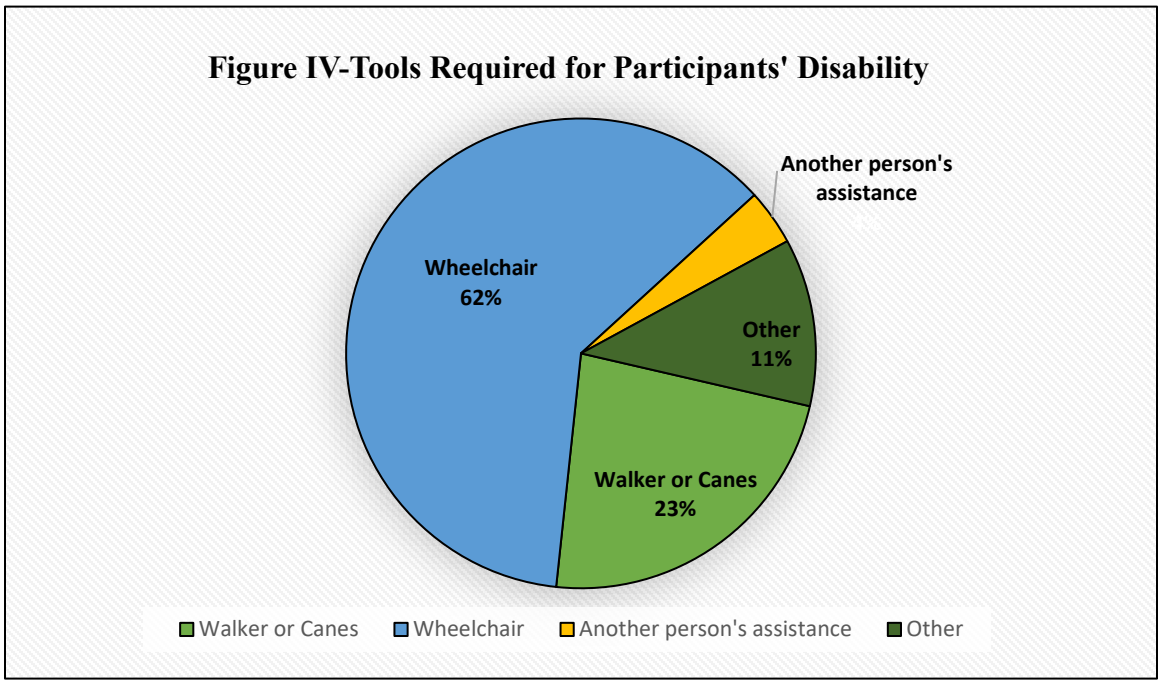


The second question asked the participant to share what type of mobility disability the respondent, or the person the respondent was providing care to, had. Of the twenty-six respondents, twelve were diagnosed with ALS and had varying degrees of symptom severity. Six of the respondents had spina bifida, once again with varying degrees of disability. The remaining eight respondents had a variety of illness which restricted mobility. This information is shown in Figure 3-Participants' Cause of Disability, which is displayed on the following page.



The third question asked what kinds of tools the respondents used. Eighteen of the twenty-six respondents used wheelchairs, though they were not all wheelchair bound. Six of the participants used canes or a walker. Many of these participants were the respondents with ALS, which means they would be transitioning to using a wheelchair. One respondent replied that they had a mobility disability that mainly required another persons' assistance. The remaining respondent used an ankle foot orthosis, also known as an AFO. This tool is used by both ALS and spina bifida patients to support the foot and ankle and to correct someone's walking pattern. With ALS, it is used to support the foot from dropping as the leg muscles weaken and is often used in conjunction with a walker.

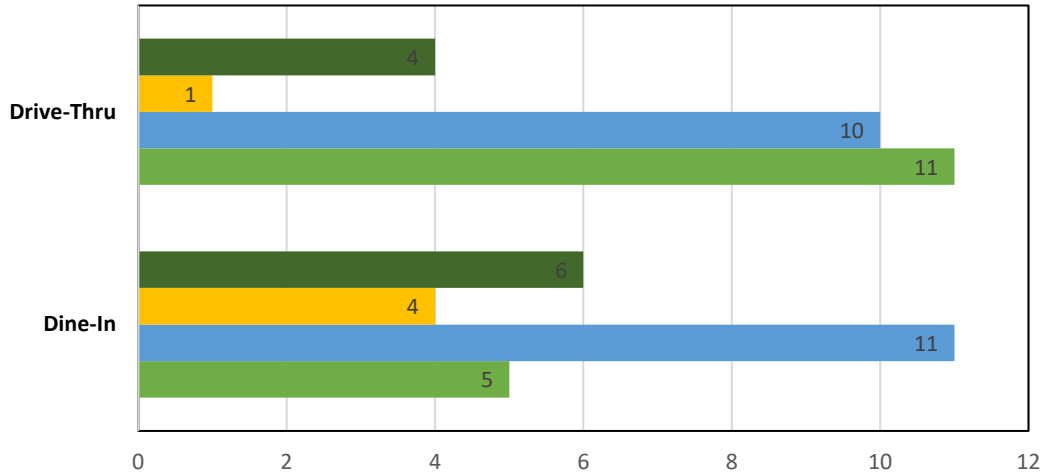
This information is displayed in Figure 4-Tools Required for Participants' Disability.



After establishing what kinds of disabilities participants managed, they were asked about their basic dining behaviors. When asked how often they ate in the dining room of a restaurant pre-Covid, sixteen of the respondents said they ate in dining rooms once a week or more. However, when asked how often they ate via takeout or take away food from a restaurant including drive through service pre-Covid, twenty-one replied once a week or more. This could initially be showing that people with mobility impairments utilize drive through or take away/takeout food options instead of dining inside restaurants due to inaccessibility of restaurant dining rooms. However, it could be that even able-bodied Americans eat take-out food and go through drive-through more often than they eat inside restaurant dining rooms. I could not find any previous research that provides this data. There are studies showing how often Americans go to fast food restaurants, but that still does not show whether they used the drive-through or ate in the

dining room. The second concern with this option is that almost half of the participants were ALS patients, which might have skewed the data for non-ALS disabled respondents. ALS affects chewing and swallowing which causes many people with ALS to simply avoid eating in front of others, which might increase drive through or take-away usage. When asked what changes they would like in restaurant dining rooms, one participant requested "seating that allows a person to face a wall and not people, to avoid distractions and embarrassment from people watching someone with ALS eat." The results for dining in restaurants versus utilizing drive-thru or takeaway services is displayed in Figure 5-Participants' Eating Habits.

Figure V-Participants Eating Habits



	Dine-In	Drive-Thru
Less than once per month	6	4
Once per month	4	1
Once per week	11	10
More than once per week	5	11

The next questions were open-ended which allowed participants to fill in their own answers. The first asked, when you eat at a restaurant, what are three things that restaurants do well that assist with your mobility disability? The responses for this question from all twenty-six participants fell into four categories: entrance accessibility, table accessibility, space adequacy and staff support.

Six participants reported that, throughout their experiences, restaurants generally have accessible entrances. Three of the six said that ramps were generally available, while two said the entrance provided enough space to enter. The sixth response in this category said that staff would offer to assist the guest up the stairs, though this might reflect that a ramp was not available.

The largest category that participants reported that restaurants did well to assist them with their disabilities was table accessibility. This category includes both table height and removable chairs so that a wheelchair bound guest could roll up close to a table. Eleven of the twenty-six participants' comments fell into this category. The majority said restaurants provided "accessible tables" while others said that restaurants generally had a blend of table types and locations available for those with disabilities. One guest left a longer comment saying:

> "*I can distinctly remember my mother used to ask for a chair to be removed from the table,* (to provide room for the participant's wheelchair). *At some point, restaurant staff started automatically asking me if they could remove a certain chair for me. This transition in training must have happened around the time I became an adult. They can also ask rather than make decisions for me whenever*

we call for reservations, like asking if one step is a problem (it isn't) or if we can use a booth (we can) rather than saying no we don't have a table for a wheelchair user, so it'll be a long wait until an accessible table is open."

The third category of responses for accessible aspects of restaurants was that there was adequate space for disabled guests. Seven guests reported that restaurants generally had adequate space and mentioned a blend of areas. Some responses said pathways were wide enough while another said there were typically accessible bathrooms available.

Finally, four respondents said that restaurant staff were helpful. The first said, "Staff are very friendly." The second participant in this category responded that staff helped make them feel comfortable in restaurants. The next mentioned that restaurant hosts acted concerned for their comfort. Finally, one person wrote that most restaurant staff members would ask if their assigned table would be convenient for them and would offer to move chairs or tables that were in the way.

The next question asked participants what restaurants do poorly that make challenges to guests with mobility disabilities. The responses for this question from all twenty-six participants fell into five categories: entrance accessibility, table accessibility, space adequacy, staff support, and accessible restroom availability. Eight of the twenty-six participants responded that entrance accessibility often posed a problem. The comment issue mentioned in this category was that restaurants tended to have narrow doorways and not all facilities had automated doors. One participant wrote that merely a single stair was enough to make a restaurant inaccessible. In this category, eight said entrance accessibility was a problem, whereas six had reported previously that entrances

were generally navigable. This does not show a trend either way and might reflect that restaurant entrances' lack of accessibility consistency and standards.

Table accessibility was the largest category for positive things restaurants did well to assist guests and only three participants out of twenty-six commented that table accessibility was an issue. One respondent said that table heights often hit at the same height as their wheelchair arms, which meant they could not pull up close to tables. I have seen this happen in restaurants, but the wheelchair in question had been specifically made for the guest and the table was the correct height according to the ADA.

Having adequate space was the next area that participants reported as problematic. Seven people listed space issues they often encountered such as tables placed too close together, pathways that were too narrow, and generally a lack of space to maneuver a powered wheelchair. However, there were the same number of participants saying restaurants lacked adequate space as those that reported there was enough space. This could be based on the size of the guests' wheelchairs, or the mobility support tools they use, or could be reflecting once again that there is a lack of accessibility consistency.

The next category of responses was that restaurant staff were not helpful. Four responses had previously written that staff were generally helpful and offered to make space and remove extra chairs for guests with disabilities. However, four respondents wrote that staff were not helpful. The exact comments were that staff members often acted that providing space to allow wheelchair access to tables was a nuisance. Others wrote that staff members were insensitive and lacked any knowledge of what accessibility means. One wrote, "Give them (restaurant employees) a wheelchair and they

can try maneuvering around the restaurant." Another person responded that staff sometimes simply ignore handicapped guests' extra needs and do not even ask if the guests needed any additional help. Even though there were the same number of comments saying that staff were helpful versus staff not being helpful, I think there is a lack of employee assistance among restaurants due to a gap in training on this topic. I believe restaurant employees would offer to help if they had any idea what to do. I worked in restaurants and never had any training concerning how to help guests with extra needs. I personally did not understand accessibility needs, as several survey responders said, until I had someone in my family who was disabled. For this category, I would suggest restaurants train employees to simply ask guests if there was anything extra they could do to help. Additionally, as one person wrote, restaurant mangers could rent or borrow a wheelchair and have everyone try wheeling themselves through the restaurants so that each staff member can personally experience how difficult it is.

Finally, eleven participants reported a lack of accessible restrooms. This is the only category that was not listed as something restaurants did well. The comments in this section were that restroom size was inadequate, there was not a clear pathway to access the restrooms and that restrooms doors were too heavy and often lacked an automatic push button. Additionally, the handicapped restrooms lacked grab bars and sometimes the soap or sanitizer containers were at the wrong height. One issue that was repeatedly reported was that there are rarely restaurant restrooms that a disabled person could go to when they required a caregiver's assistance, specifically if the assistant was of the opposite gender. This was reported by several couples when one of the spouses had ALS.

They also reported that it was an issue in multi-stall restrooms to have the handicapped stall be the one in the farthest back corner because these stalls were difficult to navigate.

Finally, the survey concluded with an open-ended question asking if there remained anything the participants would like to share. Two people responded that fast food restaurant floors were often too oily for people with mobility disabilities who used walkers or canes but did not use wheelchairs. Another person commented that when raining, restaurants need to monitor the floor slickness and provide easily visible wet floor signs while keeping them out of the cleared pathway. Another guest said restaurant managers need to watch out for trip hazards such as rugs or carpeting that was coming off the underlying flooring. One person said that restaurants needed more handrails for stairs. According to the ADA, handrails are required on both sides on ramps longer that six feet, but there are no existing rules in Title 3 of the ADA concerning handrails for stairs. The last comment was that fast food restaurants needed more counter space surrounding the drink station so that guests with disabilities who took longer to prepare their drinks were not taking up the entire space and holding up the line.

B-Restaurant Audit

After completing the analyses of the participants responses, I visited twenty restaurants in the Murfreesboro area to see whether they were in compliance with the ADA. Ten of these restaurants were quick service and the remaining ten were fast-casual styles. Overall, there was no noticeable difference in ADA compliance between these two groups. The main areas that were completely correct according to the ADA were the parking lots, ramps, and entrances to restaurants. As expected, some restaurant restrooms were not in compliance for the height of mirrors, soap dispensers, paper towel dispensers, and space measurements. Additionally, multiple restaurants had inaccessible dining rooms due to limited space and inadequate aisle measurements. Overall, the restaurants were generally in compliance with the ADA throughout their facilities. If these twenty restaurants were in compliance, but the participants of the survey generally agree that restaurants are not accessible, then that data suggests that the ADA guidelines are insufficient for guests with disabilities. The following sections highlight the data from the five segments of the restaurants audit.

All twenty restaurants were in compliance with the ADA for parking lot guidelines. Every restaurant had handicap accessible parking with the appropriate percentage of handicap to non-handicap spaces. All accessible spaces were the closest ones to the buildings and accessible entrances. All spaces were at least 96 inches wide with adjacent access aisles which were at least 60 inches wide. These extra spaces are for side loading wheelchair vehicles. However, four of the restaurants did not have clearly identifiable accessible parking spots.

The next section I audited was the entrance areas which included ramps and doors. Seventeen of the twenty restaurants were not accessible without ramps due to sidewalks and upraised areas surrounding the buildings. This meant that the majority of the restaurants had short ramps leading up to the door. Of the seventeen ramps, three of them did not have the required sixty by sixty-inch landing area at the top of the ramp required for turning space. However, all the ramps were the required thirty-six inches wide, except for one. None of the ramps were longer than seventy-two inches, which would have required handrails on both sides.

Even though the ramps were generally in compliance, there were multiple issues with the doors and foyer areas in the audited restaurants. All twenty restaurants had the required minimum opening of thirty-two inches in the doorway. However, nineteen of the twenty restaurants had doors that required grasping or twisting to open. Only one restaurant among the twenty had a functioning automatic door opener. Finally, six of the twenty restaurants contained items in the foyer area that impeded mobility. One of these was a rug that was not lying flat on the floor, another had a trifold menu ad set in the center of the floor way and several had wet floors signs blocking the pathway.

The dining area was the next section to audit. Two of the restaurants had dining areas that were not accessible to wheelchairs due to chairs that were placed haphazardly and too close together. However, both restaurants were audited immediately after the lunch rush, which meant that employees had not yet had time to reorganize the dining area. However, this still meant that a wheelchair bound customer could not have entered the dining areas of these two restaurants during those times. Eleven of the twenty

restaurants did not have sufficient wheelchair accessible tables that were out of the traffic flow. Only three of the restaurants had raised seating, so there should not have been a lack of accessible tables. The majority of tables appeared to be the correct heights for wheelchairs, so a customer or employee would have to remove a chair for a guest to roll up to the table. Only one restaurant did not provide the required knee clearance of twenty-seven inches high, thirty inches wide and nineteen inches deep. Four of the restaurants did not have the required thirty-six inches wide aisles between fixed tables. However, the majority of restaurants had extra aisle space because of spaced out tables caused by updated requirements due to Covid-19.

The final category of the restaurant audit was the restaurants' restrooms. Seven of the twenty restrooms were not accessible by wheelchair. Eleven of them failed to provide unobstructed turning space. However, of the handicap stalls, seventeen did meet the requirement measurements of sixty by fifty-nine inches. All twenty restrooms did have the required toilet heights of seventeen to nineteen inches. Nineteen of the restrooms did have grab bars, but the majority did not have as many as handicapped guests would need. All twenty restrooms had sinks at the correct height of thirty-four inches off the floor, but several of them did not provide space to roll up to the sink for wheelchair bound guests. Nineteen of the twenty restrooms had mirrors mounted with the bottom edge no higher than forty inches from the floor. However, only a few of these restaurants had mirrors that were tilted for guests in wheelchairs. Additionally, two of the restrooms failed to provide paper towel dispensers or hand dryers within reach of wheelchair bound guests.

Chapter V: Conclusion

Although businesses in the restaurant industry generally comply with Title 3 of the Americans with Disabilities Act, they remain inadequately accessible to guests with mobility issues. This is demonstrated throughout this thesis by reviewing previous research and by gaining feedback from people who live with mobility limitations. This feedback was then used in conjunction with the ADA checklist to audit restaurants. While the audited restaurants were in compliance with the ADA, the majority of disabled guests in previous research and in this study said they experience obstacles when dining out. This shows that there is a gap between the accessibility provided by the ADA guidelines and the needs of disabled customers. This gap demonstrates that the restaurant industry needs to go beyond current ADA requirements to truly be accessible and meet the needs of our diverse population. The response to this issue is to design future restaurants and modify current facilities to be based on the elements of the Universal Design Theory, which supports creating an accessible place for everyone, no matter the extent of their physical disabilities.

This thesis is relevant because it adds to the current body of research concerning restaurant accessibility. While there is abundant research from the 1990's, when the ADA became law, and again in 2010 when the ADA was updated, there is a lack of current written material on this subject. Additionally, the specific topic of implementing elements of the Universal Design Theory in the restaurant industry is a research area rarely scrutinized. However, with the increased interest in accessibility due to the construction

of the first fully accessible hotel on the North American continent, the interest in restaurant accessibility research might increase as well.

Further research could duplicate this thesis methodology on a larger scale and include varied geographic areas of the US and different segments of the restaurant industry. Other restaurant segments might include specialty beverage companies, high-end restaurants, family owned, and unique restaurants. This thesis studied both quick-service and fast casual restaurant models, but all twenty restaurants were chain companies. Other studies with varied geographic areas could see if larger cities with older parts of the town have restaurant facilities that have "grandfathered" in without making enough accessibility changes. Continued research could study how to make historic buildings that have become restaurants accessible without damaging the building or detracting from its historical context.

Restaurant managers and owners can use the Universal Design Theory to improve their facility's accessibility beyond what the ADA requires. Managers could create a checklist to audit their own restaurants for areas in which they could improve. For example, one woman wrote concerning her apartment doors in 1996, "It took me several years of struggling with the heavy door to my building, sometimes having to wait until a person stronger came along, to realize that the door was an accessibility problem, not only for me, but for others as well" (Center for an Accessible Society, 2020). This was written after the ADA, which means her building was probably in compliance with their guidelines. If managers begin noticing areas that customers have difficulty with, then they could find ways to fix it.

If restaurant industry leaders monitor and implement increased accessibility measures within restaurants, then we could serve customers with a broader range of accessibility needs. The continued success of restaurants is based partly on their hospitality. Ignoring the needs of major segments of our population is not hospitable. If owners, managers, and industry leaders worked together to create a more inclusive culture in restaurants, then we would finally be living up to the name of the hospitality industry. The conclusion to this issue of accessibility in the restaurant industry is that our population is very diverse in their physical abilities and needs and we should try our best to accommodate and be inclusive of everyone.

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Appendix A: IRB Approval Form

	Exemption Category - research activities that are exempt from continuing review	
1	Research conducted in established or commonly accepted **educational settings**, involving normal educational practices, such as, (i) research on regular and special education **instructional strategies**, or (ii) research on effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods	☒
2	Research involving the use of **educational tests** (cognitive diagnostic, aptitude, achievement), **survey procedures, interviews or observation of public behavior**, UNLESS (i) information obtained is recorded in such a manner that human subjects can be identified directly or through identifiers linked to the subjects; AND (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk or criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation	☐
3	Research involving the use of **educational tests** (cognitive diagnostic, aptitude, achievement), **survey procedures, interviews or observation of public behavior** that is not exempt in 5.2 of this section if: (i) the human subjects are elected or **appointed public officials or candidates for public office**; OR (ii) Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.	☐
4	Research involving the collection or study of **existing data, documents, records** (pathological specimens or diagnostic specimens) if publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects or the data were collected through a different protocol approved by an ethics committee such as the IRB	☐
5	Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate or otherwise examine: (i) **Public benefit or service programs**; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; OR (iv) possible changes in methods or levels of payments for benefits or services under those programs	☐
6	**Taste and food quality evaluation and consumer acceptance studies:** (i) if wholesome foods without additives are consumed, OR (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe by the Food and Drug Administration (FDA) or approved by the Environmental Protection Agency (EPA) or the Food Safety and Inspection Services of the US Department of Agriculture	☐

Recommendation:

Level of Risk: ☒ Lower than Minimal ☐ Greater than Minimal

Exemption Decision ☒ Exempt ☐ Revise and Resubmit

☐ Defer (Expedited/Full) ☐ Not a "research"

Moses Prabu 03/24/2021

(Reviewer's OC ID) (Date of Determination)

Appendix B: Online Questionnaire

Mobility-Do you have a disability that restricts mobility? OR Are you a caregiver to someone with a mobility disability?

- ○ Yes, I have a mobility disability.
- ○ Yes, I am the caregiver to someone with a mobility disability.
- ○ No.

Disability-What type of mobility disability do you, or the person you are providing care to, have?

Textbox

Tools What kind of mobility tools do you use?

- ○ Walker or canes.
- ○ Wheelchair.
- ○ Another person's assistance.
- ○ Other _____

Dine-In How often do you eat in the dining room of a restaurant?

Please consider pre-covid if you do not dine out as a result of the pandemic.

- ○ More than once a week.
- ○ Once a week.
- ○ Once a month.
- ○ Less than once a month.

Assist-1 When you eat at a restaurant, what are three things restaurants do well that assist with your mobility disability?

Textbox

Challenges-1 When you eat at a restaurant, what are three things restaurants do poorly that make challenges for your mobility disability?

Textbox

Changes-1 What changes would you like to see in restaurants for better mobility access?

Textbox

Take-Out How often do you get take out/take away food from a restaurant including drive through service?

Please consider pre-covid if you do not dine out as a result of the pandemic.

- ○ More than once a week.
- ○ Once a week.
- ○ Once a month.
- ○ Less than once a month.

Gender-What is your gender?

- ○ Male
- ○ Female

Age-What is your age?

- ○ Under 18
- ○ 18 - 24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65 - 74
- ○ 75 - 84

Ethnicity-Please select your ethnicity.

- ○ White
- ○ Black or African American
- ○ American Indian or Alaska Native
- ○ Asian
- ○ Hispanic or Latino

Appendix C: Restaurant Audit Checklist

Accessibility Checklist

These questions are based on the revised 2010 version of Title 3 from the ADA.

Circle yes/no based on each surveyed restaurant. Add additional notes as well. Check for other areas of obstruction, whether for wheelchairs or assisted walking.

Parking

1. Is there handicap parking? Yes. No.

2. Are there appropriate numbers of parking spaces? Yes. No.

Check requirement below. (Why are handicap spaces not required unless there are eleven or more parking spaces?)

up to 10	0
11 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151	6

3. Are accessible parking spaces closest to the building's accessible entrance? Yes. No.

4. Are spaces clearly identifiable? Yes. No.

5. Are spaces at least 96 in. wide? Yes. No.

6. Are adjacent access aisles at least 60 in. wide? Yes. No.

Ramps

7. Is the building accessible without ramps? Yes. No.

8. Are there ramps? Yes. No.

9. Do ramps have a landing area at least 60 in.X60 in. at the top of the ramp? Yes. No.

10. Is the ramp at least 36 in. wide? Yes. No.

11. If the ramp is longer than 72 in, does it have handrails on both sides? Yes. No.

Doors

12. Do doors have a min. opening of 32 in and max. 24 in. depth between sets of doors? Yes. No.

13. Do doors have hardware that require grasping or twisting? Yes. No.

14. Does foyer area between doors have anything that impedes mobility? Yes. No.

Dining Area

15. Can a wheelchair access dining area once inside the door? Yes. No.

16. Is min. 5% of fixed seats or tables wheelchair accessible without blocking traffic? Yes. No.

17. Are there raised seating areas? Yes. No.

(If so, is the service and decorative character the same as accessible seating area?)

18. Do tables provide knee clearance of at least 27 in high, 30 in wide. and 19 in deep? Yes. No.

19. Are aisles between fixed tables at least 36 inches wide? Yes. No.

Restrooms

20. Is the restroom accessible by wheelchair? Yes. No.

21. Is there an unobstructed turning space? Yes. No.

22. Is handicap stall at least 60 in. x 59 in? Yes. No.

23. Is toilet height between 17 in-19 in. from floor to top of toilet seat? Yes. No.

24. Does it have grab bars? Yes. No.

25. Is sink height no higher than 34 in. above floor? Yes. No.

26. Are mirrors mounted with bottom edge no higher than 40 in. from floor? Yes. No.

27. Are towels or hand dryers within reach? Yes. No.

Notes

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Appendix D: Restaurant Audit

Restaurant Audit																			
Restaurant #	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**

Question #		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Parking	**2**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	4	Y	N	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
	5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ramps	**7**	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N	N	Y	N	Y
	8	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	Y
	9	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	-	Y	Y	Y	Y	Y	Y	Y	Y
	10	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	Y
	11	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	Y
Doors	**12**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	13	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
	14	N	Y	N	N	N	N	N	N	N	Y	N	N	N	N	Y	N	Y	Y	N	Y
Dining	**15**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y
	16	Y	N	N	Y	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y	N	N	N	Y
	17	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	N
	18	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
	19	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y
Restroom	**20**	Y	N	N	N	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	N	Y	N	Y
	21	N	N	N	N	Y	Y	Y	N	N	Y	Y	N	N	Y	N	Y	N	Y	N	Y
	22	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
	23	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	24	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	25	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	26	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
	27	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N