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TG MONCH INCLUSIVE VIRTUAL TOUR WEBSITE

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ABSTRACT

This study developed and evaluated the TG Monch Inclusive Virtual Tour Website (CNU ERC Code No. 2179/2025-08) to make tourism in Cebu Province more accessible, engaging, and educational for all learners, including those with special educational needs. Prompted by the disruption of physical travel and learning opportunities during the COVID-19 pandemic, the study drew on Mayer's Multimedia Learning Theory and constructivist approaches. A Research and Development design guided by the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation) was used, and the platform was developed in accordance with accessibility standards such as the Web Content Accessibility Guidelines (WCAG) 2.1. Specifically, the study analyzed the tour itineraries of Cebu City tourist spots, designed and developed an accommodation plan, implemented the website, evaluated its accessibility and usability, and proposed enhancements. Purposive sampling was used to select 33 participants, composed of academicians, special education teachers, parents or guardians of learners with special educational needs, tour guides, accessibility personnel, and experts. Data were gathered through checklists, a self-made structured questionnaire, semi-structured interviews, focus group discussions, and usability observation, and were analyzed using descriptive statistics and thematic analysis. The participants were mostly young adults, and teachers formed the largest occupational group (36.36%). Participants strongly agreed that the website met their informational, navigational, and accessibility needs (overall weighted mean = 4.50), and experts and participants likewise rated its accessibility, visual appearance, user interface, and overall experience as Strongly Agree (overall weighted mean = 4.48). Interview and stakeholder feedback highlighted the value of authentic content in building emotional connection and trust, while barriers such as unstable internet connection, limited devices, inaccessible navigation, missing captions, and low-contrast text persisted. The study concluded that accessibility must be treated as a basic component of design rather than an add-on, and that inclusive virtual tourism requires both human-centered design and continuous input from real users. The researcher recommends mapping and categorizing Cebu City attractions against inclusive tourism frameworks, adopting a standardized accessibility matrix developed with special education and accessibility specialists, building lightweight and offline-capable versions with analytics, conducting task-based usability testing and WCAG compliance audits, and sustaining iterative enhancement that integrates emerging technologies such as AI, AR, and VR.

Keywords: *Inclusive Virtual Tour, Virtual Tourism, Cebu Province, Accessibility, Special Education Needs, Multimedia Learning Theory, Constructivist Approach, ADDIE Model, Educational Technology, Digital Inclusion*

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INTRODUCTION

Background of the Study

Tourism remains an important part of global civilization, promoting economic progress, cultural understanding, and social connection. Travel has recently been more accessible to a broader spectrum of people, including youngsters and those with learning disabilities. These students frequently exhibit deep curiosity, asking questions such as "What is this?" and "How was it made?" or "What purpose does it serve?" during guided tours. These moments show tourism's significant educational component (UNESCO, 2021).

However, the COVID-19 pandemic in 2019, combined with the advent of health concerns such as Mpox (Monkeypox), compelled the Philippine government—via the Inter-Agency Task Force (IATF)—to implement harsh travel restrictions. As a result, many physical trips were temporarily halted, restricting learners' opportunities to encounter and explore new places. Despite these limitations, kids' and families' enthusiasm to learn and explore remained strong. Many people have turned to online tools to supplement their travel experiences and learning (DOT, 2020; WHO, 2022).

This issue clearly demonstrates the need to create a virtual tour website. Such a platform can bridge the gap left by physical limitations, allowing students to explore securely and easily from their homes or classrooms. A virtual tour website, in addition to replacing on-site visits, may provide an inclusive, interactive, and engaging learning experience targeted to all learners, including those with special educational needs. By incorporating features that allow for questioning, discovery, and interaction, the platform can inspire curiosity, promote active learning, and support educational progress even amid crises (Maltais, 2022).

Furthermore, language and communication skills are essential in the tourist industry, particularly for tour guides and service professionals who work with both domestic and international guests. Traditional classroom-based simulations frequently fail to replicate real-world circumstances and offer little possibility for realistic language use. A virtual tour website, on the other hand, can replicate real-world tour experiences, providing students with valuable opportunities to practice communication in realistic settings (Radianti et al., 2020).

Computer-Assisted Language Learning (CALL) and Network-Based Language Teaching (NBLT) are two examples of technological developments that have already proven useful in improving language education by encouraging real-time interaction and authentic conversation. Semi-immersive virtual reality environments, when combined with a virtual tour, can enhance the experience by offering lifelike settings in which learners can improve both content knowledge and practical communication skills (Guttentag, 2010).

The study on the TG Monch Inclusive Virtual Tour Website identified various research and design shortcomings across its objectives. First, there was insufficient thorough mapping and categorization of Cebu City's tourist attractions, as well as no benchmarking against current accessible tourism models, limiting comparative insights into inclusion. The content also lacks layered presentation forms appropriate for different learning styles, such as simplified narratives for youngsters and cognitively diverse people versus in-depth background for professionals.

Second, the project did not build a clear accessibility framework adapted to different types of disability, and user profiles did not have control over accommodation elements such as subtitles and contrast adjustments. Collaboration with special education and accessibility professionals was also restricted.

Third, technical implementation elements such as system architecture, platform compatibility, and performance testing were not clearly documented, and no consideration was given to internet dependency or device compatibility. There were also no analytics or feedback mechanisms to track user engagement or accessibility tool usage. Fourth, the review approach relied heavily on self-reported surveys rather than usability testing, lacked performance-based metrics such as job completion or mistake rates, and failed to comply with worldwide accessibility standards such as WCAG. Finally, the project did not use an iterative design cycle with continuous

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feedback, lacked future-proofing techniques using emerging technologies such as AI, AR, and VR, and failed to turn stakeholder input—particularly from SPED instructors and parents—into a structured development plan.

As a result, creating an inclusive virtual tour website is critical not just for ensuring access to educational tourism during disruptions but also for providing a modern, adaptable, and interesting learning tool. This platform intends to promote critical thinking, language skills, and cultural awareness while being accessible to all learners, regardless of physical or learning limitations (Mostafa, 2021).

Review of Related Literature

The rapid expansion of digital technologies has altered traditional learning and communication patterns, particularly in tourism, language learning, and inclusive education. As tourism becomes more integrated with education and accessibility, virtual platforms are being used to provide immersive, interactive, and inclusive experiences. The COVID-19 pandemic and resulting travel restrictions fueled the demand for alternative tourism experiences, accelerating the development of virtual tours and educational websites tailored to diverse learners, including those with special educational needs (UNESCO, 2021; Department of Tourism, 2020).

Analysis of Tour Itineraries and Contextual Learning

Understanding and analyzing tour itineraries is essential for creating educationally meaningful virtual tours. Itinerary analysis enables designers to find important cultural, historical, and social monuments that might be highlighted for learners. In the setting of Cebu City, which is recognized for its rich history, exciting festivals, and distinct culinary traditions, carefully designed itineraries guarantee that the virtual tour is both fascinating and educational. Scholars argue that contextual and place-based learning promotes knowledge retention and fosters deeper cultural understanding (Cheng & Chen, 2020).

Understanding and analyzing tour itineraries is critical for creating educationally valuable virtual tours because they show the order, emphasis, and contextual linkages between cultural, historical, and social places that students will see. Itinerary analysis assists instructional designers in selecting and sequencing stops so that learning objectives are consistent with local narratives and affordances (for example, linking a church stop to colonial history and a market stop to local culinary traditions). Place-based and contextual learning research shows that grounding instruction in local places and culturally relevant content increases student engagement, deeper understanding, and knowledge retention; such approaches explicitly link curriculum to community resources and lived experience, strengthening learners' sense of place and cultural appreciation. In fact, including regionally important itinerary nodes into virtual tours helps students achieve curriculum goals while also developing cultural empathy and civic consciousness.

The literature on virtual field excursions and tourist-trip design highlights that a carefully selected sequence (itinerary) and multimodal presentation (360° video, VR, narrative scaffolding) have a significant impact on learning outcomes and motivation. Studies of virtual field trips and immersive heritage experiences report improvements in spatial cognition, motivation, and content learning when tours are intentionally scaffolded and paired with guiding tasks or reflective prompts; immersive formats (360° video/VR) produce stronger telepresence and can better convey spatial and contextual detail than flat media, which supports objectives in history, culture, and geography education (Garcia et al., 2023; Barbara et al., 2022). Furthermore, tourism and trip-design research has shown that itinerary planning (time, sequencing, dwell-time at points of interest) influences visitor learning and experience, and that these design principles can be applied to educational virtual tours when adapted for pedagogical purposes. The tourism-design and educational-technology literatures agree that itinerary analysis should be combined with purposeful instructional design (learning tasks, evaluations, and local narratives) to optimize engagement and learning via virtual Cebu City tours.

Design and Development of Accommodation Plans

Inclusive virtual platforms should adhere to Universal Design for Learning (UDL) principles, which stress the creation of adaptable learning environments that accommodate individual learning differences. Designing an

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accommodation plan for a virtual tour guide entails providing multimodal content—text descriptions, audio narration, visual clues, and interactive features—that meets a variety of sensory and cognitive needs. According to research, accessibility features such as closed captioning, text alternatives, and customizable navigation greatly increase learning outcomes and engagement among students with special needs (Kelly et al., 2011; Sari & Wahyuni, 2019).

Inclusive design in digital and virtual learning environments is increasingly based on the Universal Design for Learning (UDL) concept, which promotes different modes of representation, engagement, and expression to address learner diversity. According to research, incorporating multimodal features such as audio narration, tactile feedback, and interactive maps allows learners with various cognitive and sensory profiles to access knowledge equitably (Black et al., 2021). Furthermore, accessible design solutions in educational technology have been found to assist not only learners with disabilities but also improve general usability and happiness for all users, connecting inclusion with universal learner engagement (Dell, Newton, & Petroff, 2017).

Empirical research shows that virtual environments with accessibility-focused accommodation plans encourage higher levels of motivation, autonomy, and knowledge transfer. Sari and Wahyuni (2019) underline that providing customizable navigation and adaptive text alternatives considerably improves the comprehension of learners with hearing impairments. Similarly, Kelly et al. (2011) discovered that including accessibility standards, such as WCAG principles, into digital learning design enables fair participation for students with impairments while promoting inclusive pedagogy. In the case of virtual tour guides, such adjustments not only extend access but also enrich the cultural and educational experience, allowing learners of varied abilities to interact meaningfully with historical and cultural content.

Implementation and Evaluation of Virtual Tour Platforms

The creation of a virtual tour website necessitates close attention to usability and user experience. Tools such as quantitative and qualitative checklists and grading scales for accessibility, visual design, and interface assist in ensuring that the final platform meets user needs and expectations (Al-Mukhaini & Al-Busaidi, 2021). Mayer's Cognitive Theory of Multimedia Learning recommends combining visual and aural materials to reduce cognitive overload and improve meaningful learning (Mayer, 2009). These design considerations are critical to providing a seamless and intuitive experience for users with diverse backgrounds and levels of technological proficiency.

The effectiveness of virtual tour platforms is inextricably linked to their usability and accessibility, which may be systematically assessed using recognized frameworks in human-computer interaction (HCI) and education technology. According to studies, heuristic evaluations and user-centered testing approaches reveal common hurdles such as complicated navigation, poor readability, and device compatibility issues (Shadiev et al., 2020). Iterative evaluation throughout implementation guarantees that the platform not only works well but also accommodates a wide range of learners, including those with minimal digital literacy. According to research on educational websites, platforms that are created with a balance of usability, accessibility, and pedagogical alignment lead to higher learner satisfaction and better knowledge outputs.

Multimedia learning theories, which emphasize the integration of visual, aural, and interactive aspects in ways that reduce superfluous load and stimulate deeper processing, can also be used to evaluate virtual tour platforms effectively. Mayer's (2009) principles, such as coherence, redundancy, and modality, have been found to be useful in designing effective digital learning aids that maintain engagement and promote comprehension (Fiorella & Mayer, 2015). Furthermore, practical research in virtual reality and immersive learning environments shows that platforms based on multimedia learning principles yield higher levels of information retention, motivation, and transfer than standard static resources (Parong & Mayer, 2021). These findings highlight the significance of evidence-based evaluation frameworks in ensuring that virtual tour websites are both technologically sound and pedagogically effective.

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Accessibility and Usability Evaluation

Accessibility and usability are critical for the success of inclusive virtual platforms. The Web Content Accessibility Guidelines (WCAG 2.1) are a global standard for making web content more accessible to persons with disabilities, such as visual, auditory, and movement impairments (W3C, 2018). End users, such as students, parents, and teachers, should be involved in evaluations to provide input on navigation ease, content clarity, and general user satisfaction. According to research, platforms co-designed with stakeholder input have superior use and acceptance (Al-Azawei, Serenelli, and Lundqvist, 2016).

Accessibility and usability evaluations are critical for ensuring that virtual learning platforms satisfy the different demands of learners. The Web Content Accessibility Guidelines (WCAG 2.1) state that accessible design must take into account perceivability, operability, understandability, and resilience in order to enable users of varied abilities. According to empirical studies, using WCAG standards in digital learning environments not only improves accessibility for students with impairments but also increases overall user happiness and performance (Khalid, 2021). Furthermore, accessibility evaluation frameworks emphasize that compliance must go beyond technical standards to incorporate pedagogical appropriateness, ensuring that virtual platforms are both technically inclusive and educationally meaningful.

Recent studies emphasize the relevance of integrating end users directly in usability and accessibility assessments. Platforms that use participatory or co-design methodologies, in which students, teachers, and parents contribute iterative feedback, have better levels of acceptability and sustained involvement (Al-Azawei, Serenelli, and Lundqvist, 2016). User-centered evaluation methods, such as heuristic analysis, think-aloud protocols, and task-based testing, have been demonstrated to highlight key impediments that automated evaluations frequently overlook. Integrating stakeholder feedback with proven usability principles allows developers to design inclusive virtual platforms that are intuitive, egalitarian, and effective for a wide range of learners.

Continuous Enhancement and Iterative Development

The final stage of creating a virtual tour guide website is constant refinement based on user feedback and technology advancements. Iterative changes ensure the platform's relevance, engagement, and inclusivity. Studies emphasize the necessity of incorporating user feedback to improve educational tools, generating a sense of ownership and enhancing user happiness. In tourism education, improving virtual guides over time allows for the incorporation of new attractions, updated material, and increased interactivity, resulting in a deeper and more meaningful learning experience.

The continuous improvement of virtual learning environments is critical to maintaining their relevance and efficacy. Iterative development methodologies, such as agile design, emphasize the cyclical process of prototyping, testing, evaluating, and refining to guarantee that platforms keep up with user needs and technical advances (Zhang et al., 2020). According to research in educational technology, platforms that undergo continuous improvement cycles have higher usability, adaptability, and learner satisfaction than those that remain static (Nordin & Norman, 2018). This method also ensures that accessibility features and pedagogical strategies may be modified in response to new standards and changing learner demographics, making virtual tour platforms more inclusive and effective.

Furthermore, including systematic user feedback into the upgrade cycle leads to increased acceptance and engagement. Radianti et al. (2020) discovered that adding feedback from both instructors and students into virtual reality-based learning systems greatly enhanced user experience and learning outcomes. Similarly, Slater and Sanchez-Vives (2016) underlined that iterative updates based on immersion and presence studies improve the authenticity of virtual experiences, promoting deeper learning and cultural awareness. In the context of tourism education, continuous upgrades enable the incorporation of newly developed interactive features, real-time destination updates, and adaptive learning tools, resulting in a dynamic and contextually relevant virtual tour guide that remains pedagogically effective over time.

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Cross-Cultural Considerations

When designing for a varied audience, it is critical to consider the cultural values and expectations that influence user behavior. Scholars such as Hofstede (2001) argue that national culture influences attitudes toward learning, technology, and inclusivity. Understanding cultural nuances ensures that virtual platforms are polite and engaging to all users, particularly in multicultural settings like Cebu City. Armstrong and Barton (1999) also point out that attitudes about disability and inclusion differ greatly among civilizations, necessitating cultural awareness while designing for special educational needs.

Cultural factors have an important role in defining how students interact with digital platforms, especially in multicultural educational environments. Hofstede's (2001) cultural paradigm reveals how values like collectivism versus individuality, power distance, and uncertainty avoidance have a direct impact on learner expectations and engagement with technology. Researchers in educational technology have discovered that matching platform design with local cultural traditions improves student motivation, involvement, and satisfaction (Taras et al., 2012). For virtual tour platforms, incorporating culturally relevant narratives and communication styles increases diversity while also ensuring that learners from varied backgrounds feel represented and appreciated.

Cross-cultural perspectives on disability and inclusion emphasize the necessity for culturally responsive design in virtual platforms. Armstrong and Barton (1999) contend that perceptions of disability are socially constructed and vary greatly among civilizations, influencing how inclusive education policies and practices are perceived. Recent research confirms that cultural attitudes about disability have a substantial impact on the adoption of accessible features in educational technology, with certain societies valuing integration and others favoring segregation (Sharma, Forlin, & Loreman, 2008). By taking these cultural differences into account when designing virtual tour guides, platforms can avoid imposing a one-size-fits-all paradigm of inclusion and instead adapt to the socio-cultural contexts of their intended users.

Advances in Tourism and Technology Integration

Traditional simulated guide training systems are limited in time, space, and authenticity. The combination of virtual reality (VR) and embodied conversational agents (ECAs) fills these gaps by creating immersive, interactive, and dynamic learning environments (Luo et al., 2008; Hartholt et al., 2009; Huang et al., 2016). These technologies enable users to engage with guides in real time, navigate virtual environments, and learn practical skills that may be applied in real-world situations.

The ongoing integration of technology into tourist education has greatly increased prospects for immersive and authentic learning. Virtual Reality (VR) has developed as a transformative tool for recreating real-world travel experiences, allowing students to explore cultural and historical locations without being physically limited. Studies have shown that VR-based tourism experiences boost learners' spatial awareness, cultural knowledge, and motivation when compared to traditional learning techniques (Tussyadiah et al., 2018; Guttentag, 2010). Beyond visual immersion, VR offers multi-sensory engagement, which improves knowledge retention and promotes deeper learning outcomes, especially in situations where field exposure is limited.

In addition to VR, the incorporation of Embodied Conversational Agents (ECAs) into tourist platforms has enhanced the interactive learning experience. ECAs serve as digital guides, replicating genuine conversations while providing directions, cultural insights, and individualized responses based on user requests. According to research, including ECAs in educational and tourism contexts promotes user engagement while also supporting adaptive and inclusive learning by responding to individual requirements (Bickmore et al., 2016; Han, Jo, Hyun, & So, 2015). VR and ECAs work together to create dynamic, interactive, and inclusive tools that assist learners and visitors in developing practical skills and cultural appreciation within safe, controlled, and entertaining virtual settings.

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Virtual Tours in Academic and Research Settings

Beyond tourism, virtual tours are commonly used in academic contexts for orientation, research, and professional development. These tools enable scholars to study places that would normally be inaccessible due to geographical or economic constraints, allowing for more detailed data collection and contextual comprehension (Al-Mukhaini & Al-Busaidi, 2021). Integrating these technologies into tourist education can spark new research, encourage critical thinking, and promote lifelong learning.

Virtual tours are widely used in higher education for orientation, exploration, and research. They enable students and scholars to participate in realistic learning experiences by mimicking real-world surroundings and providing access to remote or otherwise inaccessible sites. According to research, virtual campus tours and museum explorations improve spatial awareness, engagement, and familiarity with unfamiliar locations, especially for first-time or international students (Roussou et al., 2015; Radianti et al., 2020). These immersive experiences promote collaborative learning and cultural appreciation by allowing users to connect with varied surroundings via digital platforms.

In research settings, virtual tours are useful for data collecting, field simulation, and professional development. They allow scholars to view locations remotely, lowering the financial and logistical costs of traditional fieldwork while preserving contextual richness. Studies show that including virtual tours in research techniques improves accessibility, boosts participant diversity, and allows for more flexible knowledge generation (Guttentag, 2010; Jung et al., 2016). These applications, particularly in tourist education, foster critical thinking and problem-solving skills by exposing students to dynamic, research-informed environments that connect theory and practice.

Synthesis

A survey of related literature demonstrates that the convergence of digital technology, inclusive education, and tourism has altered learning experiences by creating immersive and accessible virtual tour platforms. These platforms, guided by Universal Design for Learning (UDL) principles, promote equitable access by providing multimodal content—text, audio, and visuals—that cater to varied student needs (CAST, 2018; Kelly et al., 2011). Studies show that itinerary-based and place-centered approaches improve engagement and cultural understanding, particularly when combined with interactive tools like Virtual Reality (VR) and Embodied Conversational Agents (ECAs) (Cheng & Chen, 2020; Bickmore et al., 2016; Tussyadiah et al., 2018). To ensure accessibility for all learners, effective virtual tours must also incorporate user-centered design and adhere to Web Content Accessibility Guidelines (WCAG 2.1) (W3C, 2018; Al-Azawei, Serenelli, & Lundqvist, 2016). Furthermore, iterative enhancement and participatory evaluation improve these platforms' inclusivity, relevance, and cultural sensitivity, ensuring that tools such as the TG Monch Inclusive Virtual Tour Website not only promote learning but also advance digital accessibility and empathy across diverse educational and cultural contexts (Radianti et al., 2020; Hofstede, 2001).

Theoretical-Conceptual Framework

This study is based on Mayer's Multimedia Learning Theory (2001) and constructivists' notion that students should use technology to seek issue solutions and acquire new knowledge. The introduction of digital technology into tertiary education has transformed the way knowledge is delivered and felt. Virtual tours are one such emerging technology that is being used as an engaging tool to improve orientation, academic activity, and institutional presence (Moreno & Mayer, 2007). An Inclusive Virtual Website for Scholars combines multimedia learning theory, constructivist learning methodologies, and usability design guidelines.

Mayer's Multimedia Learning Theory (2001) serves as the theoretical foundation for this research. Mayer believes that when knowledge is provided through both visual and verbal channels, learners understand it better. For a virtual tour, a dual-channel technique improves cognitive processing by allowing academic users to visit new surroundings such as university campuses, libraries, or research facilities while simultaneously getting explanatory narration or interactive guidance. When appropriately constructed, virtual tours can reduce unnecessary cognitive strain while increasing creative processing (Mayer, 2009).

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Richard E. Mayer developed Multimedia Learning Theory, which is based on cognitive psychology and discusses how people learn better from words and visuals than from words alone. According to the notion, individuals receive information through two channels: verbal/auditory and pictorial/visual (Mayer 2001). These channels have limited capacity, and learning is most successful when instructional materials allow active processing in both while not overwhelming either. It also argues that using technology in education fosters an environment in which students collaborate to help each other generate new knowledge (Alisop, 2016).

Learning, according to constructivist theory, is an active, context-based process of constructing knowledge rather than acquiring it receptively. Virtual tour environments allow academics to interact with materials in meaningful ways, make decisions about what to research, and integrate new information into their existing cognitive structures. This is congruent with Piaget's (1973) concern with discovery learning, which states that users learn more effectively when they have control over navigation and pace.

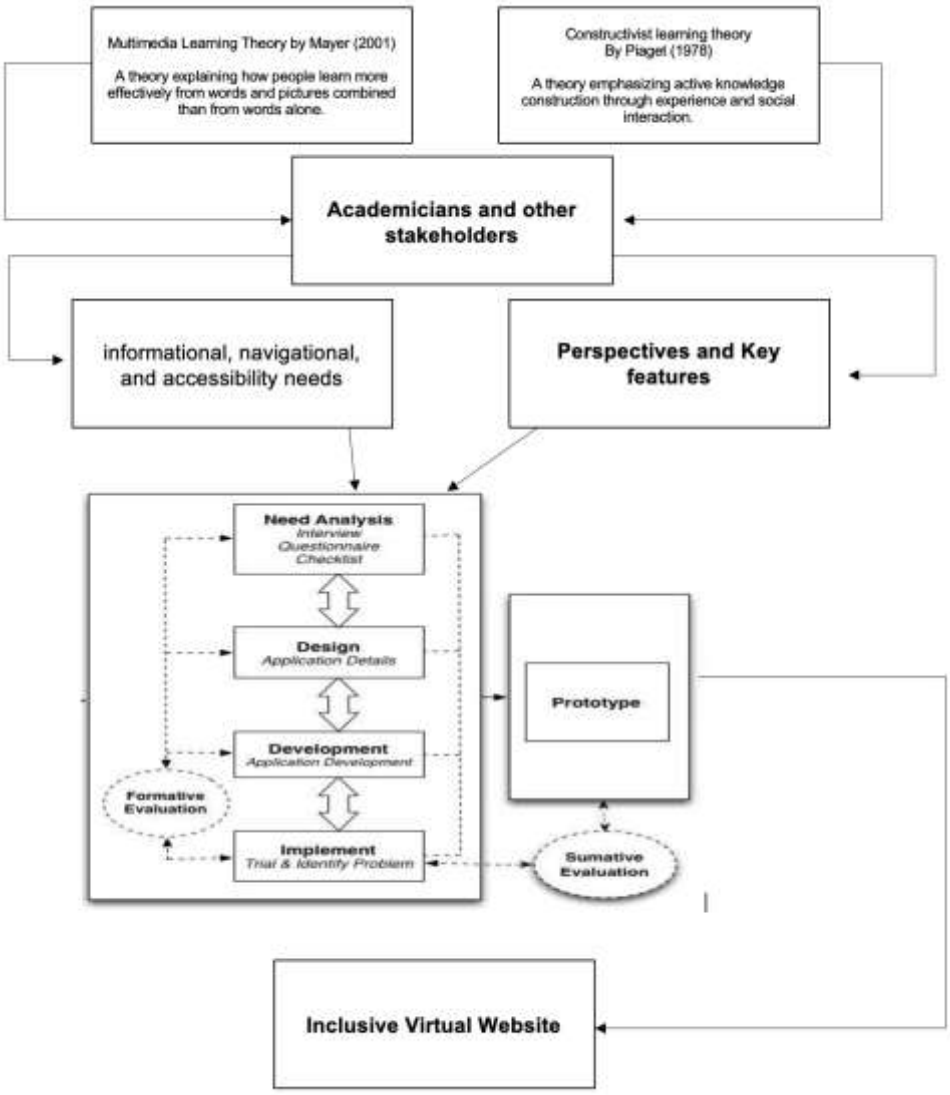
According to Richard E. Mayer's Multimedia Learning Theory (2001), learners grasp more effectively when information is offered in both visual and verbal channels, which optimizes cognitive processing during virtual campus visits. It also applies constructivist ideas (Piaget, Vygotsky) to stress active, contextual learning and learner control during exploration. The ADDIE paradigm (Analysis, Design, Development, Implementation, and Evaluation) serves as the guiding instructional design framework for the systematic design and implementation of an Inclusive Virtual Website. During Analysis, academic stakeholders work together to examine learner profiles, accessibility needs, informational and navigational goals, and how these relate to multimedia learning restrictions.

The Design phase creates interactive storyboards and dual-channel virtual tours that incorporate narrative, visuals, and hotspots, promoting comprehension and discovery while addressing constructivist learning methodologies. In development, multimedia assets and accessible site architecture are created while keeping usability standards and cognitive load in mind. The Implementation phase tests the website, introduces educators and students to the platform, and rolls it out across the institution. Finally, evaluation, both formative and summative, collects user performance data and feedback, measuring learning results, site usability, and stakeholder views, while iteratively refining the ADDIE cycle. The Inclusive Virtual Website is the tangible product of a strong, theory-driven design process that incorporates Mayer's cognitive dual-channel model and constructivist education into a structured, data-informed ADDIE framework.

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Figure 1. Theoretical-Conceptual Framework of the Study



Mayer distinguishes three memory stores: sensory memory, working memory, and long-term memory. Information first enters sensory memory, where visual and auditory information are temporarily stored. Students can select significant words and images, form them into meaningful organizations in working memory, and then integrate them into existing knowledge in long-term memory with the help of suitably structured multimedia (Mayer, 2009).

He also presented other multimedia design elements, which are particularly relevant to the virtual tour guide model. For example, according to the Modality Principle, people learn more from graphics and spoken words than from graphics and on-screen text. (2) The Spatial Contiguity Principle encourages grouping related words and images together. (3) According to the Segmenting Principle, people learn more effectively when knowledge is presented in bite-sized chunks. When applied to a virtual tour guide, these principles ensure that users—in this case, academicians—are fully cognitively engaged. For example, when a virtual guide narrates the address of a faculty research center, providing visual indications (e.g., arrows or highlights) in addition to narration improves comprehension without overwhelming the user.

Constructivist learning theory, mostly attributed to researchers such as Jean Piaget and Lev Vygotsky, holds that knowledge is constructively constructed by the learner rather than passively obtained from the environment

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(Piaget, 1973; Vygotsky, 1978). Learners in constructivist classrooms—or virtual learning environments—build their own understanding via investigation, experience, and reflective practice.

Piaget emphasized cognitive progress through self-discovery, in which students absorb new knowledge into pre-existing cognitive schemas and alter these schemas in response to novel experiences. Vygotsky created the concept of the Zone of Proximal Development (ZPD), which is a collection of tasks that pupils can complete with assistance but not on their own. His emphasis on social interaction and scaffolding has practical consequences for virtual worlds that use guided navigation or interactive assistance systems.

As seen herein, the creation of an inclusive virtual website is a solution to the issues posed by constructivist philosophy. The virtual tour guide model integrates all proposed perspectives from respondents on how to best provide academicians with determination while on a virtual tour. This also includes essential recommendations for virtual tour guides on what to talk about and how to interact with academicians who are determined to tour using the virtual modality.

Prior to the creation of an inclusive virtual website, the facts and concepts underlying successful tourism 4.0 implementation are discussed, as this is the standard for all tour guides during the pandemic. Along with the debate of tourism 4.0, there is also a focus on the intricacies of special education, stressing the ability of children or academicians with dedication. The predicted outcome of this study is a description of the impact of an inclusive virtual website on the improvement of connected abilities of scholars with determination, such as visual skills, receptive skills, manipulative skills, and daily living skills.

Furthermore, people with special needs in tourism services are regarded as alienated from social life. Questions about providing tourist services to them are being addressed only partially; no criteria exist for such activity. There is little information accessible concerning opportunities for persons with restricted abilities in Cebu City, Philippines, and the least available and least investigated area is the use of tourism facilities in the system of social protection.

It is assumed that, to some extent, this is due to insufficient development of theoretical and conceptual challenges of adaptive tourism, which significantly influences societal attitudes toward notions such as "human health" and "disability".

Tourism 4.0's concepts place a strong emphasis on the "development of adaptive tourism." Adaptive tourism is a system of social, psychological, medical, physical, recreational, and other interactions that are integrated into tourist activities while offering tourist services to those with special needs. Its priority is set on a certain form of psychosocial work at all levels of the tourism business. Adaptive tourism focuses on the study and implementation of subject-subject interactions that accompany the promotion of tourism products to people with special needs. This entails more than just the removal of mechanical barriers to travel.

Objectives of the Study

The general objective of this study was to develop an Inclusive Virtual Tour Guide Website.

Specifically, the study sought to:

1. Analyze the tour itineraries in the Cebu City tourist spots;
2. Design and develop an accommodation plan for a virtual tour guide;
3. Implement the developed virtual tour website;
4. Evaluate the accessibility and usability of the developed website; and
5. Enhance the virtual tour guide website.

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Significance of the Study

The study is important to the tour business because, despite the pandemic, services intended for them are made feasible by the inclusive virtual tour website that is an outcome of this study. This is especially important for tour guides because it allows them to work as their own guide while serving their own clients. The same study is vital to determined academicians because it would enable them to take their desired journey via the inclusive virtual website. Parents of determined academicians can rest assured that the visit to the inclusive virtual website will be meaningful for their children. This study serves as an example for other aspiring thesis writers to look into strategies to make learning for children with special needs more enjoyable and meaningful. Finally, Inclusive virtual website creators may understand that they, too, have a stake in the success of learning for children with special needs through future developments.

Definition of Terms

To fully comprehend this investigation, the following words are operationally defined:

Development is the formation of something that contributes to learning.

SEN (Special Education Needs) refers to the additional help and resources that students with learning difficulties or disabilities require to learn more effectively than their classmates.

Special education is a type of instruction that is tailored to the requirements of students with disabilities, allowing them to gain the same skills and information as normal students in the classroom.

Individuals involved in the planning, implementation, support, or decision-making processes for learners with disabilities or different learning requirements are referred to as special education stakeholders.

Inclusive Virtual Website is a learning tour guide website created to serve the interests of clients with a variety of needs, including LSENs.

Accessibility relates to how easily the virtual tour website may be utilized by persons of various abilities, including those with visual, hearing, motor, or cognitive disabilities. In this study, accessibility is assessed using standards such as WCAG 2.1 and user comments on the ease of access to information and features.

Accommodation Plan is an organized strategy to adjusting or customizing material and features on the virtual tour website to meet the needs of all learners, including those with special educational needs. This incorporates multimodal content delivery (text, audio, and graphics), assistive technologies, and flexible navigation.

Enhancement is the process of refining and improving the virtual tour website based on evaluation results and user input to ensure that it is still accessible, inclusive, and effective for all users.

Evaluation is the process of reviewing a virtual tour website's accessibility, usability, visual look, and overall usefulness. This involves both quantitative and qualitative methodologies.

Implementation is the stage at which the designed virtual tour website is officially released and made available to its intended audience, which includes students, teachers, parents, and tourist stakeholders. This phase comprises user testing and data collection from actual website usage.

Itinerary Analysis is the process of assessing and examining existing tour itineraries of Cebu City tourist attractions to discover culturally and educationally significant destinations for inclusion in the virtual tour website.

Usability refers to how effectively and efficiently users can navigate and interact with the virtual tour website. In this study, usability includes aspects such as ease of navigation, clarity of instructions, user confidence, and satisfaction.

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The Virtual Tour Website is an online platform designed to imitate a real guided tour of Cebu City tourist attractions utilizing digital resources such as 360-degree photos, audio tours, interactive maps, and multimedia content. It aims to deliver an immersive, instructive, and inclusive experience.

User Interface (UI) refers to the layout and interactive aspects of a virtual tour website that allow users to engage with material. In this study, UI refers to features such as buttons, menus, icons, and graphic design that influence the entire user experience.

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METHODS

Research Design

This study used a Research and Development (R&D) strategy led by the ADDIE paradigm (Analysis, Design, Development, Implementation, and Evaluation) to create, develop, and improve an inclusive virtual website. The R&D strategy is suitable for this study since it focuses on developing and validating educational products to meet stated needs.

Participants of the Study

The study participants included a wide range of stakeholders with direct engagement or interest in academic and accessibility-related services in the educational setting. These included academicians, such as academic staff and administrative personnel; special education instructors, who provide instructional support to students with a variety of needs; parents or guardians of students with special educational needs; and accessibility staff or officers from disability support services. A purposeful sampling strategy was used to ensure that the data collected is rich, relevant, and helpful. This sampling strategy is ideal for selecting participants who are most likely to provide significant input into the design and evaluation of the virtual tour guide model (Palinkas et al., 2015). The study included 33 participants in various stages of data collection, which is deemed sufficient to achieve thematic saturation while capturing diverse stakeholder experiences.

The three primary players gave unique yet complementary insights that were critical to the creation of the TG Monch Inclusive Virtual Tour Website. The curator from the National Museum provided valuable insights into cultural authenticity, artifact interpretation, and the educational framing of historical narratives, ensuring that the virtual content accurately represented Cebu's heritage and adhered to museum standards for cultural preservation. The IT expert from the Korea International Cooperation Agency (KOICA) provided technical expertise in digital infrastructure, web accessibility, and system optimization, guiding the integration of inclusive design principles and interactive technologies such as VR and adaptive navigation to improve user experience. Meanwhile, the DepEd Special Science Teacher in charge of ICT courses provided pedagogical and accessibility input, emphasizing the value of Universal Design for Learning (UDL), multimodal engagement, and alignment with the K-12 curriculum in supporting learners with various needs. Their interdisciplinary partnership spanned cultural, technological, and pedagogical dimensions, resulting in a more inclusive, functional, and contextually relevant virtual learning environment.

Research Environment

The study focused on Cebu City as the tour's major destination. Depending on what prospective consumers were interested in, the trip included major locations located around the city. Cebu City is separated into Cebu City-north, Cebu City-south, and a metropolitan area. Each of these districts has sites that not only contribute to the province's and city's history but also share the pride that Cebuanos take in tourism.

Cebu Province has lately received a series of key tourism-related honors, highlighting its expanding worldwide and national reputation as a premium destination. Cebu finished third in the Area Category at the NEWT Awards 2024, which celebrates the most popular locations based on traveler bookings, showing its popularity among Japanese tourists in particular. Cebu was named Asia's Leading Wedding Destination at the World Travel Awards 2024, recovering the title from Bali, which had held it for five years. Locally, the 2025 Cebu Tourism and Hospitality Awards (CTHA), held by HRRACI, recognized NUSTAR Resort & Casino Cebu as Hotel and Resort Manager of the Year and Best Marketing Campaign, and Crimson Resort & Spa Mactan as Sustainability Champion of the Year. Furthermore, Aboitiz InfraCapital, which operates Mactan-Cebu International Airport among other airports, received the Manila Overseas Press Club's Grand Tourism Excellence Award for its role in advancing connectivity and infrastructure development crucial to Cebu tourism growth. These awards recognize Cebu's strengths in destination marketing, hospitality, sustainability, and infrastructure, as well as its growing presence in worldwide tourism circuits.

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Research Instruments

The study used both quantitative and qualitative research tools, such as checklists, semi-structured interview guides, and focus group discussion protocols, to collect essential information for the Inclusive Virtual Website's development and evaluation. In this study, checklists are utilized to conduct structured, objective assessments of the virtual tour's design, navigation, and technical compliance. These include usability checklists (e.g., Nielsen heuristics) to verify task flows, clarity, and interface consistency, as well as WCAG-based accessibility checklists that guide both manual review and automated testing tools (such as axe/WAVE) for keyboard accessibility, screen reader compatibility, color contrast, and alternative text. Checklists ensure that concrete issues are captured in a methodical manner while adhering to best-practice standards.

The semi-structured interview guide is used to collect rich, contextual data from individual users, notably academics and students with special needs. It uses open-ended questions and a flexible framework (with prepared theme prompts and probing questions) to urge participants to describe their experiences, issues, and suggestions in depth—while also allowing the interviewer to follow up on unexpected but essential discoveries. This strategy strikes a compromise between interview uniformity and the adaptability required to thoroughly investigate individual perspectives.

The focus group discussion (FGD) methodology aims to elicit shared perspectives and collective responses through group interaction. The FGD, facilitated by a moderator, encouraged participants to explore usability scenarios, accessibility barriers, and interface design aspects in groups, promoting idea co-construction and mutual reflection. This strategy assisted in identifying common themes, opposing ideas, and emergent design choices that would not have been apparent in one-on-one interviews.

These instruments combined to form a comprehensive, mixed-methods research toolkit: checklists provided objective benchmarking and compliance checks; semi-structured interviews provided nuanced, individual insights; and focus groups revealed communal experiences and collaborative suggestions—all of which formed a solid foundation for evaluating and refining the Inclusive Virtual Website.

These tools were created to look at participants' experiences, expectations, and recommendations for virtual navigation aids in academic contexts, with a particular emphasis on inclusivity and accessibility for special education stakeholders. The implementation of a semi-structured interviewing style allowed for detailed probing while maintaining an adaptive organization that encouraged participants to provide comprehensive information. The focus group talks encouraged collective conversation among members, allowing for the creation of shared challenges and group ideas, particularly those related to usability and design aspects. Furthermore, an observation checklist for usability testing was used during the prototype testing phase to thoroughly document participants' interactions, navigation challenges, and attention patterns while using the virtual tour guide. Experts in educational technology, special education, and qualitative research pilot-tested and validated the instruments to ensure content accuracy, clarity, and cultural sensitivity.

All instruments—checklists, SUS forms, and guides—were pilot-tested and validated by professionals in educational technology, special education, and qualitative and quantitative research. This ensures that the material is accurate, clear, culturally relevant, and reliable before full deployment.

The researcher created a self-made structured questionnaire and interview guide for this study in order to collect both quantitative and qualitative data important to the creation of the TG Monch Inclusive Virtual Tour Website. It has been validated by both special education and research experts. The first validator is a professor of Mathematics with a major in Mathematics who specializes in instrument validation. Another validator is a Doctor of Education graduate with a major in Educational Management who specializes in research and instrumentation. Finally, the third validator is a special education teacher with an understanding of both special education and Cebu's various tourism attractions. The instrument was composed of several parts: (1) a demographic profile to classify respondents according to gender, age, educational attainment, and profession; (2) a Likert-scale survey to measure respondents' perceptions of the informational, navigational, and accessibility needs of academicians and

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professionals using virtual tour platforms; (3) open-ended interview questions to obtain in-depth insights from key stakeholders such as SPED teachers, parents, and tour guides. Experts in special education, ICT, and research methodology verified the instrument to ensure that the material was legitimate, clear, and relevant to the study's aims. The combination of quantitative scales and qualitative input enabled a more thorough understanding of user demands and system performance, in line with Creswell & Creswell (2018) and Fraenkel, Wallen, & Hyun's (2021) suggestions for mixed-methods educational research design.

Data-Gathering Procedure

The Inclusive Virtual Website effort sought to establish an accessible, instructive virtual tour platform based on actual user demands. From the start, students (including those with special needs), parents, instructors, and tourism specialists provided feedback. Their views were coupled with established standards and theories, such as WCAG 2.1 for accessibility, Mayer's multimedia learning framework, and Universal Design for Learning, to create a human-centered, evidence-based roadmap for the project.

Phase I – Analyze

Clear objectives were created during the first phase, including user navigational demands, accessibility preferences, design expectations, and the identification of culturally and educationally significant locations in Cebu City. Data collection used WCAG 2.1-based checklists to rigorously document crucial accessibility features—such as keyboard operability, screen reader compatibility, color contrast, and reflow support—that met Success Criterion 2.1.1 and related standards (w3.org, 2025). Semi-structured interviews probed individual preferences, challenges, and design suggestions; audio recordings were transcribed for qualitative analysis. Focus group conversations facilitated communal design reflection and prioritization. Consultations with stakeholders, such as educators, parents, special education experts, and tourist professionals, ensured that the content was relevant in the real world. Finally, checklist data, classified interview transcripts, and focus group topics were combined to create a comprehensive needs assessment that directly influenced the subsequent design phase.

Phase II – Design

Using Phase I insights, a thorough storyboard, content map, and user interface layout were developed. The design approach was based on Mayer's Multimedia Learning Theory, which proposes delivering synchronized narration and images via dual-channel processing to reduce cognitive burden, and is validated by empirical evidence. Storyboards used principles including temporal contiguity, coherence, redundancy, and segmentation to improve learning. The Universal Design for Learning (UDL) principles of representation, engagement, and expression influenced design decisions, allowing for flexibility in meeting the requirements of varied learners. Constructivist learning components (hotspot navigation, scaffolded steps, and exploratory learning paths) promoted learner autonomy and active involvement.

Phase III – Develop

An interactive prototype was created throughout development, with clickable hotspots over Cebu City map points (via Google Maps/Earth), guided tour flows, and a scaffolded narrative journey. Multimodal material (text, audio, and visual) adhered to Mayer and UDL criteria for cognitive accessibility. Screen reader compatibility, closed captioning, customizable font size, clear focus indicators, and WCAG 2.1-compliant keyboard navigation are all included. A controlled cohort of children, educators, and parents participated in alpha testing, with input collected through usability sessions, observations, interviews, and surveys. The difficulties discovered influenced iterative changes to interface flow, hotspots, transcripts, and accessibility settings.

Phase IV – Implement

A beta version of the virtual tour was released to a larger user base. Training materials and orientation seminars helped participants—students, educators, and parents—engage with the platform. Analytics were used to track usage, including travel patterns, engagement duration, error rates, and access records. Post-tour questionnaires and optional follow-up interviews collected usability feedback, satisfaction, learning outcomes, and any lingering access hurdles, allowing for data-driven improvements.

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Phase V – Evaluate

The evaluation was both formative and summative. Formative evaluation took place during installation, monitoring real-time interaction and finding bugs or accessibility issues. Summative evaluation occurred post-deployment, with standardized surveys and in-depth interviews assessing user satisfaction, learning efficacy, interface accessibility, and the platform's cultural and educational relevance relative to Phase I objectives. Findings were triangulated using quantitative analytics and qualitative themes. The evaluation results directed priority improvements and were incorporated into the following ADDIE cycle, ensuring continual progress.

Data Analysis

A usability checklist was used to collect quantitative data on the virtual tour guide model's specific components, such as ease of navigation, intelligibility of multimedia material, accessibility features, and overall user satisfaction. Each checklist question was rated on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) to provide for consistent evaluation across participant replies. The checklist was based on quantitative criteria such as task completion time, error frequency, and navigational confidence. Descriptive statistics, such as means, standard deviations, and frequency distributions, were used to summarize participants' ratings and identify patterns or areas for improvement in this quantitative data study. In addition, inferential statistics such as t-tests or ANOVA were utilized to discover statistically significant differences in usability perceptions among subgroups (e.g., academicians and special education stakeholders). Combining quantitative and qualitative evaluations provided a comprehensive picture of how effective and accessible the virtual tour was (Creswell & Creswell, 2018).

Thematic analysis was used to code qualitative interview and focus group data, following the six-phase approach proposed by Braun and Clarke (2006). Peer reviewers checked manual coding for trustworthiness. The design was iteratively revised based on evolving ideas.

Ethical Considerations

The study followed strict ethical requirements, which included informed consent, confidentiality, and participant anonymity. All data were securely saved and managed in accordance with the approved CNU ERC Code No. 2179/2025-08 (Mabitad et al.)

1. **Informed Consent:** Prior to participation, all participants (AWDs, instructors, and parents/guardians) were given detailed information on the study's goal, procedures, risks, and benefits. Participants or their legal guardians provided written informed permission, ensuring they understood their rights and had the option to participate or withdraw at any time with no penalty. Consent was gained for AWDs in a manner that was acceptable for their cognitive abilities and communication styles, which may have included the use of assistive devices or alternative communication approaches.
2. **Confidentiality and Anonymity:** All data obtained were kept strictly confidential. Participants were given unique identities to protect their anonymity, and all identifying information was removed from data reports and publications. Data storage was secure and in accordance with applicable data protection legislation.
3. **Data Security:** All acquired data was securely saved, with password-protected files and encrypted storage systems. Access to the data was limited to the research team, and precautions were taken to avoid unauthorized access or dissemination. To ensure participant privacy, data were anonymized prior to analysis.
4. **Participant Well-Being:** The well-being of all participants was prioritized. The study team was sensitive to AWDs' requirements, making sure that the research experience was comfortable, stress-free, and mindful of their individual differences. If any participant felt distressed or uncomfortable during the research procedure, they were given the necessary help and resources. The research protocol contained mechanisms for dealing with unforeseen occurrences that may have had an impact on participant well-being.

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5. **Researcher Objectivity:** The study team worked hard to remain objective throughout the research process, avoiding bias in data collection, analysis, and interpretation. The researchers were conscious of their own potential biases and took precautions to reduce their impact on the research results.
6. **Data integrity:** The study team ensured that the data collected were accurate, complete, and reliable. Data were scrupulously documented, and any potential errors or inconsistencies were properly resolved.
7. **Dissemination of Findings:** The study's findings were disseminated responsibly, ensuring that they were presented correctly and ethically. The report carefully disclosed the study's limitations and avoided making broad conclusions that were not supported by the data. The findings were communicated with key stakeholders, such as educators, legislators, and organizations that serve people with disabilities, in order to help them build inclusive teaching methods and accessible virtual tours.
8. Before beginning data collection, an institutional ethics review body (ERC) or similar ethical body reviewed and approved the research project. This guaranteed that the study followed ethical rules and safeguarded the rights and well-being of all participants.

These ethical considerations were included in the research process, ensuring that the study was carried out responsibly and ethically while respecting the dignity and rights of all participants.

Rigor of the Study

This qualitative research project's design and execution prioritized rigor and trustworthiness to ensure the reliability and dependability of its findings. The following tactics helped to achieve these goals:

1. **Prolonged Engagement:** The study team interacted with participants for a lengthy amount of time, allowing for a better knowledge of their points of view and experiences. This sustained interaction allowed researchers to establish rapport with individuals, build trust, and learn about their lived experiences.
2. **Persistent Observation:** The researchers observed individuals as they interacted with prototype versions of the virtual tour guide model, noting their experiences and behaviors in field notes. This provided a detailed and nuanced picture of how AWDs navigated and interacted with the virtual tour, revealing strengths and places for development.
3. **Triangulation:** Findings were triangulated using many data sources, which increased the study's credibility and reliability. Data from interviews, focus groups, observations, and usability testing were integrated to create a thorough and multifaceted insight into the participants' requirements and experiences.
4. **Member Checking:** Participants were shown key findings and interpretations to ensure that the research appropriately reflected their perspectives and experiences. This iterative procedure allowed participants to validate the findings and provide input, increasing the research's reliability.
5. **Peer Debriefing:** The study team had regular peer debriefing sessions to review data processing and interpretation, which ensured objectivity and reduced potential biases. This collaborative process enabled researchers to critically analyze their assumptions, revise their interpretations, and improve the overall rigor of the research.
6. A complete audit trail was kept throughout the research process to document all decisions, procedures, and analyses. This trial provided transparency and accountability, allowing others to critique the research and ensuring that the findings could be replicated.
7. **Reflexivity:** Researchers were aware of their own biases and opinions and considered how these might have influenced the study process. This reflexivity helps to guarantee that the findings were not skewed by the researcher's assumptions or views.

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8. **Theoretical Saturation:** Data gathering proceeded until theoretical saturation was reached, which indicated that no new themes or insights were emerging from the data. This meant that the study had a thorough understanding of the participants' experiences and viewpoints.
9. **Transparency:** The research methodology and conclusions were given in a clear and complete manner, acknowledging limits and potential biases. This transparency increased the credibility of the research and allowed readers to critically analyze the findings.
10. **Ethical Considerations:** The study followed stringent ethical norms, ensuring informed consent, anonymity, and the well-being of all participants. This ethical approach increased the overall trustworthiness of the study by displaying respect for participants and their rights.

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RESULTS AND DISCUSSION

This study was conducted to create an Inclusive Virtual Tour Guide Website that meets the different needs of users, particularly those with special education needs. Thirty participants, including parents, SPED experts, tour guides, administrators, and students, were asked to offer qualitative and quantitative feedback on the value of information, problems faced, and accessibility elements required for an inclusive virtual experience. The project, guided by the principles of Universal Design for Learning (UDL) and inclusive education, aimed to achieve several goals, including analyzing tourist itineraries in Cebu City, designing an accommodation plan, implementing and testing the website, evaluating its accessibility and usability, and proposing improvements.

The findings demonstrated that emotional connection produced by authentic material increases trust and reduces fear, although practical hurdles such as inaccessible navigation, missing captions, and low-contrast text continue to impede participation. The findings indicated that accessibility should be considered a basic component of design rather than a supplementary element. Overall, the study emphasizes the importance of incorporating inclusivity into all stages of virtual tour development—from content and navigation to accessibility tools—to ensure that all users, regardless of ability or background, can participate meaningfully and equitably in virtual learning and exploration.

Demographic Profile of the Participants

Table 1. The Characteristics of the Respondents

Variables	Categories	Values
Age *in years*	18-25 years old	13 (39.39)
	26-30 years old	5 (15.15)
	31-40 years old	14 (42.42)
	41 years old and up	1 (3.03)
Highest Educational Attainment	Doctorate Degree Holder	1 (3.03)
	With Doctoral Units	2 (6.06)
	MA Graduate	3 (9.09)
	With MA Units	5 (15.15)
	College Graduate	11 (33.33)
	College Level	4 (12.12)
	Secondary	6 (18.18)
	No data	1 (3.03)
Profession	In-house Curator	1 (3.03)
	In-house Tourist Guide	1 (3.03)
	Laborer	1 (3.03)
	Museum Curator	1 (3.03)
	Professional Tour Guide	5 (15.15)
	Sales Clerk	1 (3.03)
	School Administrator	1 (3.03)
	Student	3 (9.09)

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Variables	Categories	Values
	Teacher	12 (36.36)
	Tourist Police	1 (3.03)
	Cook Chef	1 (3.03)
	Volunteer	1 (3.03)
	No data	4 (12.12)

Note: Values are presented in frequency (percentage)

Table 1 provides the demographic profile of the respondents (n = 33), focusing on their age, educational achievement, and professional backgrounds. The bulk of respondents (42.42%) were between the ages of 31 and 40, with those aged 18 to 25 following closely behind (39.39%). This suggests that the group is primarily made up of younger persons, with only a tiny proportion aged 41 and higher (3.03%). This distribution indicates that the respondents are generally in their early to mid-career stages, which may influence their viewpoints and experiences.

In terms of educational achievement, the majority of respondents had completed higher education, with one-third (33.33%) being college graduates and a significant proportion pursuing postgraduate study—15.15% having master's units and 9.09% completing a master's degree. A smaller group reported doctoral-level education (9.09%, including degree holders and those with doctoral units). Meanwhile, 18.18% had only completed secondary education, indicating a range of intellectual backgrounds. Overall, the results suggest that the sample is generally well-educated, with a high proportion of individuals with advanced academic backgrounds.

Teachers made up the greatest proportion of responders (36.36%), followed by professional tour guides (15.15%) and students (9.09%). The remaining professions were diverse, accounting for 3.03% of the sample, and included curators, administrators, police, and service-related positions. The large proportion of teachers emphasizes the importance of education-related occupations among respondents, which may influence their attitudes on topics concerning children's conditions and learning needs. Meanwhile, the diversity of smaller occupational groups indicates that the sample includes a wide range of life experiences and professional ideas. Overall, the results show that respondents are very young and well-educated, with teaching being the most common job. This profile suggests that the respondents have an intellectual background as well as professional experience that could help them become more aware of and understand the needs of children, particularly in educational and developmental contexts.

Table 2. Reported Conditions of the Children of the Participants

Reported Conditions	Frequency
With Autism Spectrum Disorder	3 (25.00)
With Learning Disability	3 (25.00)
With Mental Retardation	1 (8.33)
With Visual Impairment	4 (33.33)
Others	1 (8.33)

Note: Values are presented as frequency (percentage)

Table 2 summarizes the reported conditions of the participants' children (n = 12). The most common condition reported was visual impairment (33.33%), followed by autism spectrum disorder (25.00%) and learning disability (25.00%). Mental retardation and other unidentified illnesses were among the least prevalent conditions (8.33%).

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The findings show that children have sensory and developmental problems, with vision impairment being the most commonly reported condition. The equal prevalence of autism spectrum disorder and learning disability suggests a strong presence of developmental and cognitive difficulties, which is consistent with broader trends in child development research, where both conditions are becoming more recognized. Meanwhile, the lower percentages for mental retardation and other diseases indicate that, while these issues occur, they are less common in this population.

Taken together, our findings show that almost all of the reported conditions are linked to learning challenges and special needs, emphasizing the necessity of early detection, adequate educational assistance, and focused interventions. The prevalence of visual impairment underlines the need for accessible measures in both learning and everyday life situations, whereas autism and learning impairments highlight the importance of inclusive educational practices and specialized professional support.

Table 3. Reported Conditions of the Children of the Clients of the Participants

Reported Conditions	Frequency
With Autism Spectrum Disorder	3 (25.00)
With Learning Disability	3 (25.00)
With Mental Retardation	1 (8.33)
With Visual Impairment	4 (33.33)
Others	1 (8.33)

Note: Values are presented as frequencies (percentages); Multiple conditions include Learning Disability, Visual Impairment, Autism Spectrum Disorder, and Hearing Impairment.

Table 3 shows the reported conditions of the children of the participants' clients (n = 8). The most prevalent conditions were epilepsy (25.00%) and autistic spectrum disorder (25.00%), with cerebral palsy, learning disability, mental retardation, and other conditions accounting for 12.50%. The group of numerous conditions included overlapping cases such as learning disability, vision impairment, autism spectrum disorder, and hearing impairment, emphasizing the complexity of comorbidities in certain youngsters. The findings indicate that neurological and developmental disorders are common among the clients' children. The prevalence of epilepsy highlights the importance of medical management and support services for families dealing with chronic neurological illnesses. Similarly, the equal prevalence of autism spectrum disorder demonstrates the continuance of developmental problems that necessitate specific educational and behavioral therapies. The existence of cerebral palsy and several comorbid disorders highlights the need for interdisciplinary methods, as these cases frequently involve mobility, communication, and sensory impairments in addition to cognitive or developmental difficulties. Overall, the findings include a wide spectrum of illnesses, including both single and multiple disabilities. The existence of complex comorbidities indicates that families have several caring duties, which may necessitate coordinated support from healthcare, education, and social services. These findings emphasize the importance of expanding inclusive programs and tailoring interventions to meet the diverse and intersecting needs of children with exceptional needs.

Tour Itineraries in the Cebu City Tourist Spots

To assess the existing tour itineraries in Cebu City, relevant data were obtained from a variety of primary and secondary sources. Primary data were gathered through interviews and informal conversations with local tour operators, tourism students, and travel guides who provide city and pilgrimage excursions. Field visits to selected tourist attractions were also carried out to assess their accessibility, visitor flow, and physical layout. Secondary data were gathered from tourism brochures, DOT-accredited websites, and internet platforms including TripAdvisor, Klook, and Cebu City Tourism Office publications. These sources offered specific information on the itineraries' location, duration, order, and activity types.

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The data focused on five key trip types within Cebu City and the surrounding areas, namely: (1) Cebu City Heritage Tour, (2) Pilgrimage Tour, (3) Island Hopping Tour, (4) Highlands and Blooms Tour, and (5) Local Souvenir Shopping Tour.

The data was examined using tour purpose, geographic proximity, accessibility, duration, and tourism attractiveness. This tour offers a detailed look at Cebu's cultural and historical heritage. The destinations are all in downtown Cebu City, with the exception of the Taoist Temple, which is located uphill in Lahug. The sequence normally begins at Magellan's Cross and ends at Fort San Pedro. Accessibility is generally good, while some heritage homes have limited space for wheelchair users.

Table 4 presents the itinerary of the Cebu City Heritage Tour.

Table 4. Cebu City Tour Itinerary

Tourist Spot	Main Feature	Accessibility	Ideal Duration	Tourism Type
Magellan's Cross	Historical landmark symbolizing Christianity's arrival	Highly accessible	15–20 mins	Cultural-Historical
Basilica Minore del Sto. Niño	Oldest Roman Catholic church in the Philippines	Accessible	30–45 mins	Religious-Heritage
Jesuit House	Museum showcasing Spanish colonial heritage	Moderately accessible	20–30 mins	Cultural
Yap-San Diego Ancestral House	One of the oldest residential houses	Narrow access road	20–30 mins	Heritage
Casa Gorordo Museum	Restored 19th-century home	Accessible	20–30 mins	Historical
Philippine Taoist Temple	Religious site for Taoist devotees	Requires vehicle uphill	30 mins	Cultural-Spiritual
Fort San Pedro	Oldest Spanish military defense structure	Accessible	20–30 mins	Historical

Table 5. Pilgrimage Tour Itinerary

Site	Religious Significance	Accessibility	Duration	Remarks
Basilica Minore del Sto. Niño	Center of devotion and origin of Christianity in Cebu	Accessible	45 mins	Spiritual focal point
Cebu Metropolitan Cathedral	Seat of the Archdiocese	Accessible	30 mins	Adjacent to Basilica
Our Lady of Guadalupe Church	Dedicated to Cebu's patroness	Accessible	30 mins	Popular for Marian devotees
Shrine of San Pedro Calungsod	Dedicated to the Visayan saint	Accessible	30 mins	Popular for Catholic Devotees
St. Joseph the Worker Church, Mabolo	Parish church known for devotion	Accessible	20 mins	Stopover for prayer
Chapel of the Holy Relics	Houses over 2,000 sacred relics	Moderately accessible	30 mins	Spiritual highlight

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Table 5 depicts the pilgrimage itinerary, which highlights Cebu's rich Catholic legacy. Sites are distributed throughout the city, necessitating automobile transit. This circuit encourages faith tourism and spiritual introspection. The majority of locations are easily accessible, although insufficient parking and facilities for people with disabilities (PWDs) remain a concern.

Table 6. Island Hopping Tour Itinerary

Site	Religious Significance	Accessibility	Duration	Remarks
Basilica Minore del Sto. Niño	Center of devotion and origin of Christianity in Cebu	Accessible	45 mins	Spiritual focal point
Cebu Metropolitan Cathedral	Seat of the Archdiocese	Accessible	30 mins	Adjacent to Basilica
Our Lady of Guadalupe Church	Dedicated to Cebu's patroness	Accessible	30 mins	Popular for Marian devotees
Shrine of San Pedro Calungsod	Dedicated to the Visayan saint	Accessible	30 mins	Popular for Catholic Devotees
St. Joseph the Worker Church, Mabolo	Parish church known for devotion	Accessible	20 mins	Stopover for prayer
Chapel of the Holy Relics	Houses over 2,000 sacred relics	Moderately accessible	30 mins	Spiritual highlight

Table 6 shows that the island-hopping tour caters to both adventurers and environment enthusiasts. Activities focus on environmental awareness and marine biodiversity. Accessibility is dependent on sea conditions; hence, inclusion for those with mobility issues is limited.

Table 7. Highlands and Blooms Tour Itinerary

Destination	Feature	Accessibility	Duration	Unique Attraction
Temple of Leah	Greco-Roman-inspired monument	Accessible by vehicle	30–45 mins	Architectural marvel
Sirao Flower Garden	Scenic floral park	Accessible via mountain roads	45–60 mins	"Little Amsterdam" of Cebu
Tops Lookout	Panoramic view of Cebu	Private vehicle required	30–45 mins	Ideal for sunset viewing

Table 7 highlights the itinerary's emphasis on relaxation and sightseeing. These sites in Busay offer a cooler environment and an appealing look. While the attractions are picturesque and family-friendly, access for people with disabilities is limited due to steep terrain and stairways.

Table 8. Local Souvenir Shopping Tour Itinerary

Location	Main Offerings	Accessibility	Estimated Duration	Remarks
Taboan Public Market	Dried fish, local delicacies	Accessible	30–45 mins	Crowded but authentic Cebu experience

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Location	Main Offerings	Accessibility	Estimated Duration	Remarks
Carbon Public Market	Variety of local goods	Accessible	45–60 mins	Oldest and largest public market
Tabo sa Banay	Handicrafts and souvenirs	Accessible	30 mins	Affordable local crafts

Table 8 presents an overview of Cebu's local trade and craftsmanship. Markets are easily accessible, but the throng and tight aisles might pose sensory issues. This tour benefits the local economy and promotes cultural immersion.

The examination of Cebu tour itineraries demonstrates that the city's tourism options are quite broad, including cultural and religious history, natural attractions, adventure sites, and local market experiences. Accessibility, however, varies by category. City and pilgrimage trips are often inclusive and convenient for most travelers; however, highland, island, and market tours pose more difficulties for those with disabilities owing to topography, transportation, or structural limits. Furthermore, the flow and duration of existing itineraries suggest a considerable possibility for developing combination tours such as "Cultural Heritage and Souvenir Shopping" or "Pilgrimage and Highlands," which can improve visitor experience while reducing travel time. Despite Cebu's well-developed tourism network, digital documentation and navigation tools are still fragmented, stressing the need for a centralized virtual platform that offers integrated access to virtual tours, accessible data, and customizable itineraries (Sumiarsa, 2022).

The findings have important implications for tourism growth and innovation. Cebu has great potential as a multi-themed tourist destination. The incorporation of its tour itineraries into a comprehensive virtual platform could boost tourist promotion, accessibility, and sustainability. In terms of inclusive virtual tour design, the study emphasizes the importance of including accessibility features such as audio narration, text captions, 360-degree virtual walkthroughs, and PWD-friendly information to ensure that all users, regardless of ability, can enjoy Cebu's attractions. The findings suggest that stakeholders and policymakers should prioritize infrastructure upgrades in less accessible tourist destinations in order to promote inclusive tourism in all sectors. Finally, for future research and innovation, the acquired data can be used to create immersive digital experiences and smart-tourism apps for a wide spectrum of passengers, including seniors and people with impairments (Theofanous et al., 2024).

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Figure 2. Love Cebu (Department of Tourism Region VII, 2025)



Figure 2. The Love Cebu flyer, published by the Department of Tourism in 2025, beautifully showcases the island's boundless wonders under the theme of "Love in Every Corner." It celebrates Cebu's breathtaking biodiversity, award-winning natural beauty, vibrant culture, and delectable cuisine, which all contribute to the province's spirit. The Biodiversity of Love section highlights Cebu's diverse fauna, including the lovely Siloy bird of Alcoy, the soft Butanding or whale shark of Oslob, the stunning Sardine Run of Moalboal, the gigantic Thresher Shark of Malapascua, and the graceful Egrets of Olango. The Award-Winning and Natural Beauty of Love showcases Cebu's most breathtaking landscapes, including Osmeña Peak in Badian and Dalaguete, the mystical Bukilat Cave in Camotes Island, the enchanting Kawasan Falls in Badian, the eco-rich Bojo River in Aloguinsan, and the picturesque Pescador Island in Moalboal. Meanwhile, the Festive and Cultural Love part highlights Cebu's deep-rooted traditions, including the colorful Sinulog Festival in Cebu City, the historic Boljoon Church, and the venerated Sto. Niño Church, the old St. Peter and St. Paul Parish on Bantayan Island, and the heroic Kadaugan sa Mactan at Mactan Shrine. Finally, the Gastronomical Love area welcomes everyone to experience Cebu's authentic flavors, including Puso (hanging rice), creamy Tablea chocolate, crispy Cebu Lechon, aromatic Tuburan Coffee, and the sweet Torta de Argao. Together, these sections capture the essence of "Love Cebu," a genuine invitation to discover, experience, and appreciate the island's wonders (DOT, 2025).

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Figure 3. Cebu City Highland Pilgrimage Tour (Cebu City Tourism Commission, 2025)



Figure 3 depicts the Cebu City Highland Pilgrimage Tour, a spiritual travel route created by the Cebu City Tourism Commission and published in 2025. This tour emphasizes the city's spiritual monuments situated in its beautiful mountains, taking both locals and visitors on a journey of faith, introspection, and peace. The journey begins at the Chapel of the Holy Relics on OAD Tabor Hill, a revered site with sacred relics that elicit intense devotion. It continues to the Church of Mary Co-Redemptrix in Barangay San Jose, Talamban, which serves as an architectural emblem of faith and community. Pilgrims are then led to the Our Lady of Manaoag Rosary Sanctuary in Barangay Guba, where the serene setting encourages prayer and reflection. The journey concludes at the Calvary Mountain Station of the Cross in Barangay Sirao, where visitors can contemplate solemnly on Christ's Passion while enjoying breathtaking mountain vistas. Together, these sacred places constitute the center of the Cebu City Highland Pilgrimage Tour, highlighting the city's rich spiritual legacy and the ongoing devotion of its people (Cebu City Tourism Commission, 2022).

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Figure 4. Cebu City Heritage Walk (Cebu City Tourism Commission, 2025)



Figure 4 depicts the Cebu City Heritage Walk, which was created by the Cebu City Tourism Commission. It takes visitors on a mesmerizing trip through the city's rich historical and cultural past. This guided walking tour begins at Fort San Pedro, the oldest triangular bastion fort in the Philippines, which represents the city's colonial origins. From there, guests take a nostalgic trip in a traditional tartanilla or horse-drawn carriage to Magellan's Cross, a venerated monument commemorating Christianity's introduction in the region. The route leads to the Basilica Minore del Santo Niño, which houses the country's oldest religious relic, and the adjoining Cebu Metropolitan Cathedral, the ecclesiastical seat of the Archdiocese of Cebu. The journey then takes you to the Archdiocesan Museum of Cebu, Plaza Hamabar, and the Colon Obelisk, all of which commemorate significant events in Cebu's faith and history. Further along, tourists can explore the Jesuit House 1730, one of the city's oldest structures, before enjoying the complex artistry of the Cebu Heritage Monument and the maintained splendor of the Yap-San Diego Ancestral House. The journey concludes at the Casa Gorordo Museum, a 19th-century mansion that provides insight into the lives of Cebu's important families during the Spanish era. Overall, the Cebu City Heritage Walk is a journey through time, reflecting the Cebuanos' lasting spirit, faith, and identity (Cebu City Tourism Commission, 2025).

Accommodation Plan for the Virtual Tour Website

Primary and secondary data were gathered in order to build and develop an appropriate accommodation strategy for Cebu City's Inclusive Virtual Tour Website. Primary data were gathered through interviews and online surveys with local tourists, hotel staff, and representatives from the Department of Tourism (DOT) Region VII. These respondents provided insights on visitor preferences, accessibility requirements, booking experiences, and common issues encountered when looking for accommodations online. Secondary data were gathered from

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tourism databases, DOT-accredited lodging listings, and major booking sites including Agoda, Booking.com, and Airbnb. The information gathered includes hotel classes, locations, pricing ranges, facilities, and accessible characteristics. To guarantee compliance with national tourism and accessibility criteria, data were evaluated from relevant policies such as the Tourism Act of 2009 (RA 9593) and BP 344 (Accessibility Law). The data were assessed using four main criteria: lodging type and classification, location and proximity to tourist locations, accessibility and inclusivity features, and compatibility with the proposed virtual tour guide platform. To begin, an analysis of Department of Tourism-Philippines (DOT)-accredited establishments in Cebu City revealed five major categories: luxury hotels (4-5 stars) located in central business districts such as Ayala and IT Park; mid-range hotels (2-3 stars) near city attractions offering affordable comfort; budget inns and hostels common in downtown areas and terminals catering to students and backpackers; and resort-type accommodations in Mactan or mountain areas ideal for leisure.

Second, mapping revealed that most accommodations clustered around Cebu City—particularly within 2 kilometers of important tourist attractions like Magellan's Cross, Fort San Pedro, and Basilica Minore del Sto. Niño's mid-range hotels are located near transit hubs, while high-end resorts are accessible via Mactan-Cebu International Airport. Third, accessibility analysis revealed that only a small percentage of establishments have full PWD-friendly features such as ramps, accessible restrooms, wide corridors, and Braille-labeled elevators; many small and mid-range hotels still lack inclusive design, creating barriers for guests with disabilities. This finding is consistent with research indicating significant disparities in hotel adaptability nationwide. (Martin-Fuentes et al., 2021).

Finally, the integration feasibility criterion refers to an accommodation plan envisioned as an interactive module of the Inclusive Virtual Tour Guide Website: each listing would include 360° virtual room tours and photographs, real-time booking links, accessibility ratings and icons for people with disabilities, seniors, and families, map-based navigation connecting accommodations to nearby attractions, and user reviews with digital feedback features. Based on these findings, Cebu City's accommodation sector is well-developed and capable of meeting a wide range of tourist needs—from luxury to budget travelers—though inclusion and accessibility are inconsistently implemented among facilities. The proposed accommodation plan aims to increase inclusivity by making accessibility information visible and actionable for all travelers, particularly those with disabilities and seniors, and to seamlessly integrate accommodation data with the virtual tour interface, assisting tourists in selecting lodging based on location, price, and accessibility. The virtual guide, which uses interactive maps and multimedia presentations, allows consumers to virtually explore potential accommodations before making a real booking, boosting convenience, confidence, and transparency in the vacation planning process.

The consequences of these discoveries are multifaceted. For tourism development, the accommodation strategy strengthens Cebu's position as an inclusive, multi-themed tourist destination by encouraging hotels and housing options that value accessibility and sustainable tourism practices. Incorporating accessibility indicators and 360-degree previews into inclusive virtual tour design ensures that the platform is user-friendly and inclusive, improving the travel experience for people with disabilities, elders, and first-time visitors. For policymakers and stakeholders, the findings underscore the importance of implementing universal design standards, improving accessibility infrastructure at lodging businesses, and encouraging involvement in digital tourism efforts. This study lays the groundwork for a smart tourism ecosystem that connects attractions, accommodations, and transportation services using virtual and augmented reality platforms, aligning Cebu City with global trends (La-ong-in Thayarnsin, 2024; Martín-Fuentes et al., 2021).

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Informational, Navigational, and Accessibility Needs of the Participants

Table 9. The Informational, Navigational, and Accessibility Needs of the Participants (n = 33)

Parameter Statements	Median	Range	Mean	SD	Description
Informational Needs					
The virtual tour provides clear and understandable information(labels, descriptions).	5.00	2.00	4.64	0.65	Strongly Agree
The content of the virtual tour is relevant to my academic work.	4.00	2.00	4.27	0.76	Agree
Supplementary materials (texts, videos, links) are available and helpful.	5.00	2.00	4.67	0.60	Strongly Agree
Academic terminologies used in the tour are easy to understand.	5.00	2.00	4.46	0.62	Strongly Agree
Navigational Needs					
It is easy to move through the virtual tour (e.g., clicking, dragging, zooming).	4.00	2.00	4.46	0.56	Agree
The layout and organization of the tour content are intuitive.	5.00	3.00	4.52	0.76	Strongly Agree
I can easily find specific sections or points of interest within the tour.	5.00	3.00	4.46	0.75	Strongly Agree
Navigation aids (such as maps, menus, or search functions) are available and useful.	5.00	2.00	4.52	0.62	Strongly Agree
Accessibility Needs					
The platform works well with assistive technologies (e.g., screen readers, magnifiers).	5.00	2.00	4.52	0.62	Strongly Agree
Alternative text is provided for images and other visual elements.	5.00	2.00	4.46	0.62	Strongly Agree
Customizable settings (font size, color contrast, audio) are available.	5.00	2.00	4.49	0.57	Strongly Agree
Customizable settings (font size, color contrast, audio) are available.	5.00	2.00	4.50	0.67	Strongly Agree
Overall, the accessibility features meet my needs effectively.	5.00	2.00	4.49	0.62	Strongly Agree

Note: Descriptions of the median score are based on the following ranges: 4.20–5.00 Strongly Agree, 3.40–4.19 Agree, 2.60–3.39 Neutral, 1.80–2.59 Disagree, and 1.00–1.79 Strongly Disagree.

Table 9 summarizes the informational, navigational, and accessibility needs of the participants (n = 33) in relation to the virtual tour. Across all three domains, the results generally reveal positive feedback, with most indicators rated as *Strongly Agree* or *Agree*.

Participants strongly agreed that the virtual tour provided clear and understandable information (M = 4.64, SD = 0.65), whereas supplemental resources (M = 4.67, SD = 0.60) and academic terms (M = 4.46, SD = 0.62) received comparable ratings. The only factor rated significantly lower, but still good, was the content's connection to academic work (M = 4.27, SD = 0.76), implying that while the tour content was generally useful, its academic alignment may vary based on the participant's field or needs.

In terms of navigational demands, respondents considered the virtual tour simple to traverse and interact with, praising the straightforward layout (M = 4.52, SD = 0.76), the availability of navigation aids (M = 4.52, SD =

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0.62), and the ability to access certain portions. Although ease of movement within the tour received a somewhat lower rating (M = 4.46, SD = 0.56, defined as "Agree"), the scores nevertheless suggest a generally smooth and user-friendly experience.

In terms of accessibility, the response was largely good. Respondents highly agreed that the platform performed effectively with assistive technology (M = 4.52, SD = 0.62), supplied alternative text for visuals (M = 4.46, SD = 0.62), and allowed for customized settings such as font size, color contrast, and audio modifications (M = 4.49-4.50). Importantly, the overall accessibility elements were regarded as highly effective in satisfying participant demands (M = 4.49, SD = 0.62), demonstrating the virtual platform's inclusion.

Overall, the data show that the virtual tour met the informative, navigational, and accessibility expectations of participants. The continuously strong scores indicate that the platform is both user-friendly and accessible, with just small areas for improvement in terms of academic relevance and navigation. These findings highlight the potential of virtual tours as successful educational engagement tools, provided that material is constantly updated to correspond with varied academic disciplines and user needs.

Tables 1–3 and 9 provide a comprehensive profile of the participants, their children, and their clients, as well as their opinions of the virtual tour platform. The respondents were mostly young adults, well-educated, and had teaching as their primary occupation (Table 1), indicating that the group was both academically qualified and professionally diversified. However, a significant proportion of their children (Table 2) and their clients' children (Table 3) were found to have developmental, cognitive, and sensory disorders such as autism spectrum disorder, learning disabilities, visual impairment, and epilepsy, with some cases involving multiple comorbidities. These findings highlight the participants' direct experience with children with special needs, either as parents or as care providers, which may influence their attitudes on accessibility and inclusivity. In this context, feedback on the virtual tour (Table 9) was largely positive, with high scores for informational clarity, navigational ease, and accessible elements, particularly the use of assistive technologies and configurable settings. Taken together, the data indicate that, despite the fact that the participants and their communities face challenges related to various child conditions, the virtual tour effectively met their needs by being inclusive, informative, and user-friendly, demonstrating its potential as a supportive educational and engagement tool.

Informational Needs

The survey was delivered shortly after the respondents completed the virtual tour experience. Respondents from varied backgrounds—teacher, engineer, doctor, office clerk, part-time/full-time tour guide, students, and doctorate holders—were asked to score the tour on a five-point Likert scale. Their experience and expectations of clarity, relevance, and accessibility were impacted by their roles as parents or guides to children with a variety of requirements (e.g., learning difficulties, ASD, cerebral palsy, vision or hearing impairment).

Clarity of Labels and Descriptions

Given the predominance of responders parenting or guiding people with cognitive or learning disabilities (Learning Disabilities 31.8%, ASD 27.3%), as well as a variety of educational levels, it is expected that labeling clarity and clear language will be highly valued. Cognitive-friendly design (uniform layouts, concise vocabulary) is especially important for people who may experience information overload.

Academic Relevance

Almost all responses are academic professionals (teachers) and students (from undergraduate to doctoral level). This diverse intellectual background implies that expectations for relevance will also differ. Tutors or students at higher levels may demand richer or more technical content, whilst others may prefer fundamental or multimodal explanations (for example, visual/audio aids).

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Value of Supplementary Materials

According to research, 75.5% of students find multimedia support (videos, descriptive texts, animations) "much" or "very much" required in virtual learning tours, and 62.9% believe it enhances course engagement. Given the respondents' different learning demands (from neurodiverse youngsters to instructors), the availability of supplemental materials is likely to receive a high rating.

Ease of Academic Terminology

The acceptability of academic language will differ depending on whether the respondent has merely a college education or a doctorate. If the vocabulary is very technical, expect indifferent or mixed responses, particularly from individuals unfamiliar with academic jargon. This underlines the importance of layered material (basic explanations with optional advanced depth).

Thirty-three respondents scored four important assertions regarding the virtual tour on a five-point scale (1 = strongly disagree, 5 = strongly agree): clarity of labels and descriptions, academic relevance, usefulness of supplemental information, and simplicity of academic language. Respondents represented a wide range of backgrounds, including parents aiding children with special needs (particularly learning disabilities and autism), educators, tour guides with varied levels of experience, and professionals and students ranging from college to doctoral level. Because of this variation, clarity and accessibility are not negotiable: labels and descriptions must be straightforward, consistent, and cognitively friendly, particularly for neurodiverse users. In terms of academic relevance, respondents are likely to demand layered content—basic for students and more in-depth for professionals or graduate-level users. Multimedia—including videos, texts, and links—is believed to be extremely valuable: according to studies, 75.5% of students consider multimedia integration "much" or "very much" vital in learning applications, and 62.9% believe it increases interest and engagement. Meanwhile, educational theory emphasizes that integrating words and visuals helps students learn more effectively—Mayer's Cognitive Theory of Multimedia Learning clearly illustrates that coupling visuals and text improves retention and understanding. Finally, a diverse range of educational backgrounds recommends that language should be understandable: academic jargon should be reinforced with hover definitions or optional glossaries to benefit both rookie and expert users.

Given these findings, the virtual tour should stress clarity and cognitive accessibility, with labeling, explanations, and navigation that are intuitive and predictable. It should provide tiered content—brief tales with optional deeper dives or downloadable resources—to meet a wide range of academic expectations. Integrating multimedia-rich information isn't just a nice bonus; it's necessary. Videos, contextual text, and useful links all contribute directly to comprehension and engagement. Finally, academic language should be understandable: include inline definitions or expandable glossaries so that both specialists and general users can confidently explore.

Navigational Needs

The 33 respondents—who include parents supporting children with special needs, tour guides with various experience levels, educators, professionals, and doctoral students—were asked to rate four navigation-related aspects of the virtual tour using a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree): ease of moving around (e.g., clicking, dragging, zooming); intuitiveness of layout and organization; and ability to quickly find specific sections or points of interest. Given that many users face cognitive or sensory issues (e.g., learning disabilities, autism, visual impairments), and that others may be accessing the tour via several devices, seamless navigation is not only easy, but also necessary. According to research, smart layout and navigation increase user engagement dramatically, whereas poorly designed navigation leads to frustration or abandonment.

Looking at this group's requirements, various design imperatives emerge. First, movement through the tour must be seamless and predictable—click-and-drag controls, zooming gestures, or touch-based navigation should be fluid, responsive, and tolerant of errors or hesitation (in line with Jakob Nielsen's heuristics such as "user control and freedom"). The structure and organization of material should reflect users' mental models, with sections and points of interest placed in logical and familiar order. Navigation aids such as maps, menus, breadcrumbs, and

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search tools help users—particularly those with visual or cognitive disabilities—orient themselves, minimizing confusion and increasing confidence. When these tools are genuinely integrated, users with various needs can explore the tour at their own pace without feeling lost.

Accessibility Needs

A total of 33 respondents, including parents of children with learning difficulties or autism, tour guides with differing levels of expertise, educators, and professionals at various academic levels, were surveyed to better understand their accessibility needs in a virtual tour scenario. While they were not prompted with specific categories, their diverse backgrounds indicated a wide range of needs: some may rely on screen readers, others require high-contrast visuals, and those supporting children with motor or sensory challenges may benefit from keyboard navigation or alternative gesture controls.

This group's rich diversity emphasizes the importance of designing using the POUR framework (Perceivable, Operable, Understandable, and Robust). For example, individuals with visual impairments require text alternatives, descriptive markup, and scalable text in order to perceive content. Users with motor or dexterity problems, as well as those who use keyboards or switch devices, require interfaces that can be fully operated using a keyboard or other input techniques. Cognitive accessibility is also important: clear, consistent design and predictable controls benefit users with learning difficulties or autism, which aligns with the comprehensible concept. Finally, robustness guarantees that the platform operates across several devices and assistive technologies while maintaining its integrity over time. Layering these accessibility aspects with inclusive design principles, such as involving various users in design and testing, improves usability for everyone.

- **Provide multiple sensory routes.** Include semantic markup, alt text, captions, transcripts, and customizable high-contrast themes to ensure that material is accessible to users with vision, hearing, or assistive technology.
- **Allow for more flexible interactions.** Ensure complete operability by keyboard, speech, or touch to accommodate motor variances and assistive device users.
- **Emphasize clarity and predictability.** Consistent design, straightforward navigation, and plain language can help lessen cognitive strain, especially for neurodiverse users.
- **Build for longevity and inclusion.** Use semantic programming and assistive-technology compatibility to make the tour platform more robust and future-ready.
- **Co-create with users.** Involve parents, educators, and guides in testing and iterating the design to ensure that it fulfills real-world needs and reflects a variety of ways to interact with digital settings.

According to the demographic data, users are not a homogeneous group; they have a variety of sensory, cognitive, and physical needs. Designing for this variety entails creating a flexible, multimodal, and robust virtual tour platform that adheres to WCAG's POUR principles and values inclusive design at its core. This ensures that all users, whether they are taking the tour themselves or on behalf of their children, can navigate, comprehend, and enjoy the experience with autonomy and confidence.

Clients' Feedback from the Interviews

Based on the interview, the following feedback was gathered:

Theme 1: Technical and Resource Barriers

Respondents commonly identified inconsistent internet, restricted device availability, and software compatibility as key barriers to adopting virtual tours for academic reasons. These constraints frequently impeded smooth navigation and constant access.

> *"When using virtual platforms in my academic work, one challenge I face is having a poor internet connection that makes the tour slow or laggy."*

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"I cannot always use the platform because I don't have the proper device, and I often get headaches."

"Intermittent internet connection… especially when many users are using the platform at the same time."

"Personally, I find it difficult to maintain virtual platforms as an educational tool due to limitations of resources, which may include funds and experts."

This indicates a continuous discrepancy in device ownership and availability. Not all students have laptops, tablets, or cellphones that can run advanced virtual tour apps. Schools and universities frequently presume that students have personal access to such gadgets, but this assumption does not reflect the economic reality for many students (Gonzales et al., 2016).

Theme 2: Usability and Navigation Challenges

Several participants reported difficulty navigating virtual tours due to confusing interfaces, limited interactivity, and low content quality. For some, cognitive effort and a lack of clear orientation reduced the learning value.

"The challenge is that users will still have to study how to use the virtual tour since it is a new platform."

"Difficulty in navigating the platform and limited interaction."

"It's very challenging to explore."

"The extent of information available in the virtual tour platform and its relevance in my academic work is sometimes overwhelming."

Theme 3: Accessibility and Special Education Needs

Respondents emphasized the relevance of accessibility features customized to learners' various needs. Suggestions included multimodal content, assistive technology integration, and customizing choices.

"People with unique needs differ. It would be ideal to categorize these distinct demands in order to build a suitable platform—for example, touch-based gadgets for the blind or visual images for learners with attention issues."

"Virtual tours could be even better for students with special needs if they're made more accessible and flexible—like adding captions, sign language, calm modes, and tools that let teachers and families guide and support them at their own pace."

"Features like audio descriptions, closed captions, adjustable text size, simplified navigation, and interactive prompts would make virtual tours more accessible and engaging."

"Accessibility features, personalized na kisinatian."

Theme 4: Pedagogical Value and Impact

Despite the challenges, several participants agreed that virtual tours improve teaching and research by increasing learner engagement, visualization, and immersion. They stressed the importance of virtual tours for improving comprehension and motivation.

"To enhance understanding, virtual tours can help students by providing them with a visual representation of information."

"Exploration became easier."

"This is a big help, especially in improving ourselves and the effectiveness of our teaching."

"Virtual tours enhance my research by providing an immersive, visual experience that makes the concept easier to understand and explore, saving time compared to physical visits."

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> *"Virtual tours greatly contribute to teaching because they make the lesson more engaging and visual, which helps students better understand the concepts."*

This means that virtual tours target a key feature of human cognition: the effectiveness of visual representation in learning. Visual learning tactics have consistently been shown to boost retention and knowledge across a wide range of subject areas (Mayer, 2021). One educator clearly articulated this principle, noting that virtual tours "can help students by providing them with a visual representation of information." This observation is consistent with cognitive load theory, which holds that multimedia presentations, when properly designed, reduce extraneous cognitive load and facilitate deeper processing of information (Sweller et al., 2019).

Theme 5: Recommendations for Improvement

Participants proposed practical improvements to virtual tours' inclusion, usefulness, and reliability. Offline access, multimedia integration, user-friendly navigation, and improved technological infrastructure are among the most important proposals.

> *"Having offline access or downloadable content is also a big help for those who do not have constant internet."*
>
> *"Map of the route and Google Earth/Map views should be integrated."*
>
> *"Add videos, multiple language options, and accessibility tools like audio guides and captions."*
>
> *"Enhancements such as customizable navigation, better integration with assistive technologies, and multilevel content could significantly improve the experience."*

This suggestion directly addresses the connectivity restrictions that frequently impede virtual tour effectiveness, especially for users in places with poor internet infrastructure or who face budget constraints that limit data access (Burd et al., 2018). Furthermore, multilingual support is a critical component of inclusive design, especially for institutions serving linguistically varied populations. García and Wei (2014) found that language hurdles can inhibit students from engaging with educational content, regardless of their cognitive aptitude or technological access.

Stakeholder Perspectives: SPED Professionals, SPED Teachers, and School Administrators

The researchers solicited feedback from 30 stakeholders, including special education professionals, SPED teachers, and school administrators, by asking six open-ended questions about how current virtual tour platforms serve learners with disabilities, which features are necessary for inclusivity, how school culture is reflected, the role of assistive technologies, messages conveyed to families, and potential barriers. Across comments, a similar narrative emerged: existing platforms typically fail to fulfill the sensory and cognitive demands of neurodiverse learners, lacking configurable sensory settings, intuitive design, or multimodal cues to minimize anxiety during transitions or exploration. Respondents stressed the need for explicit alignment with Universal Design for Learning (UDL) principles, namely numerous modes of representation (audio, visuals, text), expression, and engagement, which are crucial for diverse learning profiles. When asked how virtual tours can reflect inclusive culture, several people imagined platforms that highlight accessible pathways, quiet zones, essential support workers, and inclusion initiatives, displaying a school's actual commitment to inclusion rather than just its rhetoric. In terms of assistive technologies, stakeholders agreed that closed captions, audio descriptions, screen-reader compatibility, and even sign-language overlays were fundamental components of an inclusive experience, rather than optional add-ons. Perhaps most strikingly, educators stated that a tour should comfort families of children with disabilities by demonstrating empathy, competency, and belonging through deliberate design decisions that prioritize accessibility and support.

Finally, impediments highlighted included technological limits (bandwidth, hardware access), teacher preparedness, and the increased resource demands of generating highly adaptable or multimodal content—despite the fact that such investment improves learning equality.

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These stakeholder viewpoints reveal some actionable concepts for the inclusive virtual tour platform. First, UDL-informed design must be integrated into the core architecture from the start by providing multiple content representations (text, visuals, narration), adjustable sensory inputs (e.g., lighting levels, background sound), and the ability for users to interact via keyboard, touch, or assistive devices. Second, to authentically depict an institutional inclusion culture, the tour should include visible resources such as accessible paths, inclusion coordinators, support staff, and student stories, so that families feel seen and accepted. Third, assistive technologies should be seamlessly integrated rather than peripheral. Closed captioning, audio descriptions, screen reader compatibility, and sign-language video overlays should be standard rather than optional. Fourth, in order to provide real support to families, the platform should use inclusive messaging that portrays confidence in students' belonging and celebrates varied learning profiles while using compassionate language and diverse representation. Finally, while technical limitations and staffing can be a challenge, the respondents agreed that investing in adaptive, accessible virtual tours pays off in terms of building trust with families, assisting learners' transitions, and demonstrating a school's genuine commitment to special education—all of which contribute to educational equity.

Drawing on the lived experiences of SPED professionals and administrators, the virtual tour must be more than just visually appealing; it must represent inclusivity through UDL principles, accessible technologies, clear institutional storytelling, and empathy-based design. By doing so, it may become a strong instrument for welcoming families, supporting different learners, and reflecting an academic culture in which every student has the resources and support they need to discover, engage, and belong.

Parent Perspectives

The thirty-three respondents—specifically those supporting children with diverse special education needs—shared their views on six key areas: what information matters most in a virtual school tour; their previous experience (or expectations) with such tours; which features would help them feel confident in a school's ability to meet their child's needs; the importance of including staff, classrooms, and testimonials; how virtual tours can bridge access gaps; and their experience

The majority of parents stated that when evaluating a school, they want to see clear descriptions of classroom routines, sensory accommodations, specialized staff (e.g., SPED instructors, therapists), safety standards, and accessible routes. These components assist families in visualizing their child's possible supports and comfort in the environment—a need validated by studies demonstrating that virtual tours reduce anxiety and establish connection through contextualized visual information. The majority of participants had never used virtual tours before; those who had described them as effective only when they featured real-life events, such as students interacting with staff or participating in class. Those without prior experience expected immersive, human-centered narratives exhibiting school culture and accessibility, rather than sterile visuals, which is consistent with research on parent expectations and trust-building in virtual media.

When asked which elements would boost their confidence, parents stressed the critical relevance of multimodal accessibility, including closed captions, audio narration, sign-language overlays, screen-reader compatibility, customizable contrast, and font size. These expectations adhere to universal design principles and engage neurodiverse learners in an equitable manner. Parents really like watching staff introductions, classroom activity clips, and testimonial snippets from other families—tools that promote warmth, knowledge, and belonging through personal tales and various representation formats.

Finally, parents praised virtual tours as effective bridges for families unable to visit campuses. They perceived them as facilitating true connection and informed decision-making, particularly when improved for accessibility, narrative presence, and low-bandwidth performance. This coincides with the well-documented benefits of virtual involvement, such as empowering families to investigate and feel included in decision-making.

These parent insights reveal clear design priorities. First, the virtual tour should begin with narrative-rich scenes—a warm welcome, followed by real classroom footage, staff pleasantries, and insights into sensory or learning

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supports—to help parents emotionally anchor the encounter. Second, inclusive design must be central: built-in accessibility aids (captions, alt text, high contrast, screen-reader compatibility, and sign language overlays) should be visible rather than hidden. Third, the content should clearly reflect inclusive culture by highlighting SPED professionals, assistive equipment (such as sensory rooms or quiet places), accessible pathways, and examples of active learning—all of which embody the school's support philosophy. Fourth, hearing other parents share their experiences fosters emotional resonance and trust; therefore, parent testimonials and staff introductions should be thoughtfully integrated. Finally, to really serve parents with limited time, mobility, or connectivity, the tour must be lightweight, mobile-friendly, and optimized for low bandwidth to provide fair access.

For parents of children with special needs, a virtual tour is more than just a visual preview; it's a story of belonging, support, and comfort. The virtual tour platform may do more than just inform by focusing on compassionate storytelling, visible inclusion practices, and robust accessibility. It can also affirm, engage, and welcome families with significant intention.

Evaluation of Accessibility, Usability, Content, and Design

Table 10. Accessibility, Usability, Content, and Design

CATEGORY	MEAN	INTERPRETATION
Item Description		
Informational Needs		
1. The virtual tour provides clear and understandable information.	4.8	Strongly Agree
2. The content of the virtual tour is relevant to my academic work.	4.39	Agree
3. Supplementary materials (texts, videos, links) are available and helpful.	4.45	Strongly Agree
4. Academic terminology used in the tour is easy to understand.	4.42	Strongly Agree
Category Mean	4.4	Strongly Agree
Navigational Needs		
1. It is easy to move through the virtual tour (e.g., clicking, dragging, zooming).	4.36	Agree
2. The layout and organization of the tour content are intuitive.	4.64	Strongly Agree
3. I can easily find specific sections or points of interest within the tour.	4.58	Strongly Agree
4. Navigation aids (maps, menus, search) are available and useful.	4.48	Strongly Agree
Category Mean	4.48	Strongly Agree
Accessibility Needs		
1. The platform works well with assistive technologies.	4.64	Strongly Agree
2. Alternative text is provided for images and visuals.	4.58	Strongly Agree
3. Customizable settings (font size, contrast, audio) are available.	4.48	Strongly Agree
4. Accessibility features meet my needs effectively.	4.48	Strongly Agree
Category Mean	4.54	Strongly Agree
Overall Weighted Mean	4.50	Strongly Agree

Note: Descriptions of the mean score are based on the following ranges: 4.20–5.00 Strongly Agree, 3.40–4.19 Agree, 2.60–3.39 Neutral, 1.80–2.59 Disagree, and 1.00–1.79 Strongly Disagree.

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Table 10 shows that the aggregate mean of 4.50 indicates that respondents strongly agree that the TG Monch Inclusive Virtual Tour Website meets their educational, navigational, and accessibility requirements. Accessibility Needs scored the highest mean (4.54) of the three categories, indicating that users value the website's inclusive design features, which include assistive technology compatibility, alternative text, and adjustable viewing options. Navigational Needs (4.52) followed closely, showing ease of movement and sensible layout, while Informational Needs (4.44) remained high, indicating that the content was clear, relevant, and educationally worthwhile.

These findings are consistent with the accessibility and usability principles highlighted in inclusive design research (W3C, 2023; Henry et al., 2019), demonstrating that when digital tools are created with empathy and universal access in mind, they improve both learning and engagement. The findings also show that previously highlighted weaknesses, such as a lack of assistive features and navigational difficulty, were successfully addressed through iterative development and stakeholder participation.

Accessibility Evaluation

The thirty-three participants—parents of children with special needs, educators, tour guides, and professionals—were asked to assess four key dimensions of accessibility in a virtual tour website: whether all parts were easily accessible; barriers encountered during navigation; readability of text (size, colors, contrast); and clarity of audio guides and captions. Most users reported being able to access significant areas, but there were still issues, notably with navigating by keyboard or assistive devices, which was consistent with other virtual tour accessibility assessments in which users with motor impairments struggled with unclear controls. Many participants praised clear text contrast and legibility when sans-serif fonts and high-contrast color schemes were used but expressed confusion when text was placed over busy backgrounds or navigation cues changed unexpectedly, highlighting the importance of consistent semantic layout and predictable structure. Audio guides and captions were usually assessed highly when well-synchronized and complete, but disruptions or omissions were identified as significant hurdles for people who rely on auditory or visual support, emphasizing the necessity of accurate captions and transcripts.

These findings indicate various design imperatives. To ensure accessibility for those with limited dexterity or vision, the site should support fully operational navigation, including keyboard-only access, logical tab ordering, skip links, and unambiguous focus indicators. To ensure readability, prioritize text presentation with changeable font sizes, high-contrast color schemes, and clear spacing. Consistent headings and layouts should be used throughout the site. Third, audio and captioning elements should be precisely synchronized, full, and easily accessible—along with transcripts—to meet a wide range of sensory and cognitive requirements. Finally, the interface should adhere to inclusive design principles (as outlined in the WCAG's POUR framework) to guarantee that all users can perceive, operate, understand, and use the material. The replies illustrate that full accessibility is fundamental, not optional. By committing to keyboard-accessible navigation, clear and customizable text, and dependable multimodal support, the virtual tour platform may empower and inspire people of all abilities and settings. It's more than just following guidelines; it's about respecting the diversity and dignity of each user's experience.

User Experience (UX)

Thirty-three participants, including parents of children with various special needs, educators, experienced tour guides, and professionals from various educational levels, evaluated the virtual tour platform's accessibility, notably its keyboard navigation, text readability, and audio/caption clarity. Some users noted difficulty navigating the tour using only keyboards or assistive devices, emphasizing the necessity for clear tab order, focus indications, and skip links to avoid "keyboard traps". While sans-serif text styles and high-contrast themes were appreciated for readability, some pointed out that typefaces over elaborate backdrops or uneven heading structure caused confusion, emphasizing the need for structured layout and visible design that adheres to WCAG guidelines. Participants also valued synchronized audio guides and accurate captions—but where timing or transcripts were missing, comprehension suffered, especially for users relying on auditory or visual accessibility supports. This aligns with findings that complete, well-timed captioning and audio description are essential for equitable access.

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These ideas provide four distinct design imperatives:

First, the tour must offer comprehensive keyboard operability, including logical tab navigation, focus visibility, and alternatives to mouse-driven interactions, to ensure accessibility for people with motor or visual impairments. Second, text readability must be prioritized, which includes customizable font sizing, strong contrast ratios, and clear spacing, as well as semantically structured headings and a clean layout that adheres to WCAG best practices. Third, multimodal assistance is essential—every narrated part must have correct captions and transcripts, as well as accessible toggles to accommodate various sensory needs. Finally, inclusive design must go beyond compliance by prioritizing varied user inclusion from the start, seeing accessibility as essential rather than optional.

The respondents make it obvious that accessibility is more than just a checkbox; it is the path to dignity, confidence, and freedom. By incorporating keyboard navigation, accessible and structured text, and dependable multimodal support, as well as an inclusive design approach, the virtual tour platform can really serve users of all abilities and circumstances.

Thirty-three diverse participants—parents of special needs children, teachers, SPED professionals, tour guides, and academic professionals—were asked to reflect on six open-ended questions about their virtual tour experience: what they valued most, the challenges they encountered, how easy it was to find information, whether the site felt inclusive and accessible, what additional features they'd recommend, and how they would rate their overall experience. The majority of respondents praised the tour's emotional resonance, saying that seeing genuine classrooms, sensory-friendly environments, staff-student interactions, and parent testimonies provided them a concrete sense of belonging and support. This is consistent with research indicating that human-centered storytelling and contextualized imagery promote trust and connection.

However, some users pointed out usability and accessibility issues, such as unlabeled hotspots, inconsistent navigation, and features that did not support screen readers or keyboard navigation. Some users reported that graphic elements lacked alt text, captions were missing or out of sync, and complicated menus made deeper content difficult to access. These findings are consistent with previously observed barriers in immersive settings, where a lack of assistive help or semantic framework causes disorientation, particularly for neurodiverse users and those with sensory processing problems.

Most people ranked knowledge retrieval as Easy or Very Easy for top-level facilities such as schools, sensory rooms, or support centers due to prominent arrangement signals. However, numerous people ranked deeper access as Neutral or even Difficult when it came to navigating regulations, personnel information, or accommodation protocols, particularly when the content was hidden behind icons or layers of menus. When asked if the tour seemed inclusive, the majority said Yes; some said Somewhat, pointing out the lack of features such as adjustable contrast or audio narration; and a few said No, citing missing subtitles or non-responsive controls. Many proposed additional information, such as interactive maps of accessible routes, staff introductions, parent video testimonials, and sensory adjustment controls—all of which are directly supported by current best practices in inclusive virtual engagement.

Overall, the majority of respondents ranked their experience as Good or Excellent, citing emotional clarity and confidence as major advantages. A few further suggestions for alternative formats—such as slow-loading graphics, downloaded transcripts, and offline versions—to assist families with restricted bandwidth or device capabilities.

These extensive reflections highlight several important design considerations. To begin, incorporate narrative presence throughout the experience: start with authentic classroom scenes, visible SPED staff, and student interactions to assist families emotionally position themselves in the environment. Second, prioritize inclusive design and accessibility by ensuring that all content supports screen readers, captions, alt text, adjustable contrast, and keyboard navigation from the start, rather than as an afterthought.

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Third, make institutional support visible—show accessible routes, sensory rooms, SPED specialists, and inclusive programming—to assist families in understanding not only the physical structure but also the spirit of inclusion. Fourth, use multimodal and emotional resonance resources, such as parent tales, staff introductions, and accessible movies, to foster comfort and trust. Offer lightweight or offline options, such as downloaded transcripts, low-bandwidth mode, or image-based versions, to enable full exploration for all families, independent of connectivity.

According to the responders, a virtual tour is more than just educational; it is a symbol of belonging and security. By focusing on human stories, institutional transparency, and built-in accessibility, the platform can validate the worth and dignity of each user's journey.

Expert and Participant Evaluation of the Website

Table 11. Accessibility, Visual Appearance, User Interface (UI), and Overall Experience (UX)

Category	Statement	Mean (E)	Mean (P)	Overall Mean	Interpretation	Implications
Accessibility	The website is easy to access and navigate.	4.67	4.43	4.48	Strongly Agree	Indicates that users find the platform highly user-friendly and accessible across devices, supporting inclusive design principles.
	Text and visuals are clear and readable.	4.67	4.47	4.48	Strongly Agree	The clear readability and balance of visuals ensure that both SPED learners and general users can comprehend the content effectively.
	Audio and caption features are helpful and clear.	4.33	4.37	4.36	Agree	Audio and caption elements enhance comprehension for users with hearing or visual limitations, though further refinement could improve clarity.
Category Mean		4.56	4.42	4.44	Strongly Agree	The website effectively meets accessibility standards and promotes equitable user participation.
Visual Appearance	The design is visually appealing and attractive.	4.67	4.50	4.52	Strongly Agree	Aesthetic appeal increases engagement and motivates repeated use among students and teachers.
	The images and graphics support my understanding.	4.67	4.50	4.52	Strongly Agree	Visual aids serve as cognitive scaffolds that enhance conceptual understanding and retention.
	The colors and layouts are comfortable to view.	4.67	4.43	4.45	Strongly Agree	Appropriate color contrasts and layout contribute to visual comfort and reduce cognitive load.

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Category	Statement	Mean (E)	Mean (P)	Overall Mean	Interpretation	Implications
Category Mean		4.67	4.44	4.47	Strongly Agree	Visual elements effectively sustain attention and support accessibility compliance (WCAG 2.1).
User Interface	The website's structure is logical and easy to follow.	4.67	4.50	4.52	Strongly Agree	A clear interface structure helps users efficiently navigate sections and locate learning materials.
	Buttons and links are easy to find and use.	4.67	4.47	4.48	Strongly Agree	Proper placement of interactive elements ensures intuitive navigation and supports users with motor or cognitive challenges.
	I felt confident interacting with the website.	4.67	4.50	4.52	Strongly Agree	High confidence levels indicate strong user trust and usability effectiveness.
Category Mean		4.67	4.50	4.52	Strongly Agree	User-centered interface promotes independence, inclusivity, and learning continuity.
Overall experience	The virtual tour helped me learn new information	4.67	4.53	4.55	Strongly Agree	Confirms the platform's educational value in enhancing contextual understanding of Cebu's culture and history.
	I enjoyed my overall experience with the website.	4.67	4.47	4.49	Strongly Agree	Enjoyment suggests that the virtual environment successfully integrates learning with engagement.
	I would recommend this website to others.	4.67	4.50	4.52	Strongly Agree	High recommendation rate indicates strong acceptance and potential for institutional adoption.
Category Mean		4.67	4.50	4.53	Strongly Agree	Demonstrates the website's effectiveness as an inclusive digital learning tool for both academic and tourism purposes.
Overall Weighted Mean		4.64	4.46	4.48	Strongly Agree	The TG Monch Inclusive Virtual Tour Website is highly effective in accessibility, usability, and learning enhancement.

Note: Descriptions of the median score are based on the following ranges: 4.20–5.00 Strongly Agree, 3.40–4.19 Agree, 2.60–3.39 Neutral, 1.80–2.59 Disagree, and 1.00–1.79 Strongly Disagree.

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Table 11 shows the responses of three experts (E) and thirty participants (P), with an overall weighted mean of 4.48, indicating that both experts and participants strongly agree that the TG Monch Inclusive Virtual Tour Website is accessible, visually appealing, easy to navigate, and effective in delivering learning experiences. The high results in all categories indicate that users had a great experience with the site, particularly in terms of clarity, inclusivity, and design appeal. Experts' significantly higher mean ratings (4.64) reflect their assessment of the site's strict adherence to accessibility requirements (WCAG 2.1), whereas participant evaluations (4.46) focus on user pleasure and ease of use.

The study's findings revealed that the TG Monch Inclusive Virtual Tour Website received an overall weighted mean of 4.48, indicating that both experts and participants strongly agree that the platform is highly accessible, visually appealing, simple to use, and effective in improving learning experiences. The consistently high ratings across all categories indicate that consumers had a favorable experience with the website, notably with its clarity, inclusion, and well-structured design. Furthermore, experts' slightly higher mean rating of 4.64 demonstrates their appreciation for the platform's strict adherence to international accessibility standards such as the Web Content Accessibility Guidelines (WCAG 2.1), whereas participants' average of 4.46 reflects their satisfaction with the website's usability and overall user-friendly experience.

The findings have several important consequences. From a pedagogical standpoint, the TG Monch Inclusive Virtual Tour Website is a unique concept for incorporating virtual tours into inclusive education, allowing students of all abilities to study Cebu's culture, history, and tourism in an interactive and relevant way. In terms of design, the website's successful mix of visual appeal and accessibility promotes user motivation and provides equal participation for all learners. On the technological side, ongoing refinement of assistive features—such as captioning, changeable visual and audio settings, and voice-over functions—is critical to the platform's inclusivity and compatibility across several devices.

Finally, in terms of tourism and education, the study's positive evaluation highlights the potential of this inclusive virtual tour website to contribute to the digital transformation of tourism education and promote Cebu's cultural and historical attractions through user-friendly technologies.

Summary of Findings by Objective

Guided by the research objectives, the analysis captured the opinions of 30 respondents—including parents of children with special needs, SPED experts, tour guides, school administrators, and students—on the construction of an Inclusive Virtual Tour Guide Website. The data gathered from surveys, interviews, and usability testing were analyzed to provide insights regarding tour itineraries, accessible accommodations, implementation processes, and platform usability.

The analysis of the TG Monch Inclusive Virtual Tour Website showed various gaps and recommendations across its five primary aims. When reviewing Cebu City tour itineraries, the shortcomings included a lack of precise mapping and benchmarking against accessible tourism models, as well as a lack of layered storytelling for various audiences. Thus, it is recommended to identify tourist destinations, integrate inclusive tourism frameworks, and use multi-level content design to meet the diverse needs of users. Gaps in the accommodation plan design included the absence of a framework for disability-specific tools, insufficient expert collaboration, and a lack of user customization. The report proposes creating an accommodation matrix, interacting with SPED and accessibility professionals, and personalizing accessible settings for each user. There were technological difficulties during implementation, such as a lack of defined system architecture, offline choices, and analytics. As a result, it is recommended to construct a technical foundation, create low-bandwidth or offline versions, and incorporate analytics and feedback mechanisms. The gaps in accessibility evaluation were due to an overreliance on self-reported data, a lack of performance-based testing, and noncompliance with WCAG standards; thus, task-based usability testing, WCAG compliance, and think-aloud methods are advised. Finally, the website was improved without an iterative improvement cycle, future-proofing for AI, AR, and VR, or organized stakeholder inclusion. To maintain ongoing inclusivity, engagement, and technological relevance, it is recommended to use iterative

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design and testing, integrate emerging technologies, and create a development roadmap based on stakeholder feedback.

Objective 1: Tour Itineraries in the Cebu City Tourist Spots

The examination of Cebu City's tour itineraries found that cultural, historical, and educational features were highly valued by respondents, especially when presented in a clear and engaging way. However, considerable gaps were found in how these itineraries were constructed and contextualized. The study discovered a lack of systematic mapping or categorization of tourist attractions, such as museums, temples, parks, and heritage sites, which hampered comprehensive accessibility planning.

Furthermore, there was no comparison of these itineraries to inclusive tourism frameworks or models developed by the Department of Tourism and UNESCO, which could serve as guidelines for accessibility and inclusivity. It was also discovered that material delivery was not stratified based on user profiles, resulting in wasted opportunities to target learners with diverse cognitive and educational backgrounds. To overcome these issues, it is advised that structured itinerary planning, inclusive tourism models, and multi-level storytelling strategies be used to personalize experiences for both children and professionals.

Objective 2: Accommodation Plan for the Virtual Tour Website

When planning and establishing an accommodation plan for the virtual tour website, respondents stressed the importance of accessibility features like subtitles, text-to-speech, and adjustable contrast—not as optional add-ons, but as key design aspects. Nonetheless, gaps have emerged due to the lack of a formal framework for matching specific assistive tools to disability categories, minimal interaction with SPED specialists, and a lack of user-centered customization. Without these, accessibility is superficial and inconsistent. As a result, it is recommended to create a matrix of accommodations for visual, hearing, motor, and cognitive limitations, while also including relevant technologies (such as alt-text, transcripts, and simplified layouts). Collaboration with SPED professionals and accessibility specialists should be made permanent to increase inclusion, and customizing options should allow users to pre-select accessible preferences for a more adaptive experience.

Objective 3: Implementation of the Virtual Tour Website

The execution of the developed virtual tour website revealed both successes and shortcomings. While users praised the elegant interface and seamless navigation, various technical flaws were identified, including the absence of a clear technical framework outlining system architecture, hosting, and cross-platform compatibility. Furthermore, no solutions were developed to overcome internet instability or device constraints, which disproportionately affect learners in low-resource settings. The lack of feedback and analytics systems hampered the ability to track user engagement and accessibility performance. To address these challenges, it is recommended to build a strong technological infrastructure that includes cross-device testing and lightweight design. Furthermore, creating offline or low-bandwidth alternatives, such as downloadable static tours or 360° panoramic photos, will increase the platform's accessibility. Integrating real-time analytics and feedback systems is also necessary for ongoing improvement and timely updates.

Objective 4: Accessibility and Usability Evaluation

During the evaluation phase, survey data revealed good ratings for information clarity, navigation, and accessibility, demonstrating that the virtual tour was effective in offering an inclusive digital experience. However, further investigation found methodological flaws in usability testing. The reliance on self-reported surveys reduced the impartiality of the results, as there was no task-based usability testing or performance measures like completion time or error rates. Furthermore, accessibility was not measured against widely known standards like the Web Content Accessibility Guidelines (WCAG). To solve these issues, future evaluations should include task-based usability testing and WCAG 2.1/2.2 compliance checks to quantify accessibility scientifically. Think-aloud techniques can also elicit nuanced user feedback, revealing latent usability flaws that quantitative surveys may miss.

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Objective 5: Enhancement of the Virtual Tour Website

Finally, the enhancement phase of the virtual tour underscored the importance of continuous and iterative improvement. Feedback from parents, SPED professionals, and ICT educators indicated that accessibility should change in tandem with user needs and emerging technologies. However, the study discovered flaws such as the lack of an iterative redesign cycle, insufficient preparation for future technologies such as AI, AR, and VR, and the absence of a structured roadmap that converts stakeholder input into concrete initiatives. To ensure long-term sustainability and relevance, employ a cyclical design process (prototype → test → improve → retest) and plan for scalability by incorporating AI-driven narration, AR compatibility, and tools like Google Maps and Lovable.dev for enhanced engagement. Consolidating stakeholder feedback into a strategic development plan will inform future updates on mobile optimization, immersive narrative, and universal accessibility, reaffirming the project's objective to create a truly inclusive and human-centered virtual experience.

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CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The initiative demonstrated that accessibility is not optional but necessary, as evidenced by the viewpoints of parents, SPED specialists, tour guides, teachers, and students. By utilizing inclusive and human-centered design techniques, the study revealed that designing for marginalized populations benefits all users. Prompt engineering has evolved as an important technique, not only for productivity, but also for incorporating empathy, clarity, and accessibility into prototypes from the outset. Its application enabled the rapid production of accessible layouts, features, and validations, ensuring that inclusivity was a priority rather than an afterthought. Beyond technical compliance, the findings emphasized the significance of emotional resonance, demonstrating how genuine representation of classrooms, staff, and sensory accommodations fosters trust and belonging. The study also emphasized the importance of reflexive prompt engineering, which includes fairness, openness, and consideration for various user needs. Finally, the study found that true inclusivity in virtual tour design necessitates both imaginative prompt engineering and ongoing input from real users in order to develop meaningful, accessible, and human-centered experiences. The study on the *TG Monch Inclusive Virtual Tour Website* successfully addressed its primary objectives by developing and enhancing an accessible, inclusive, and user-centered virtual experience for diverse learners and visitors. In analyzing the tour itineraries of Cebu City, the research revealed that while cultural, historical, and educational elements were well represented, there was a need for clearer mapping, categorization, and benchmarking aligned with global accessibility standards. This analysis underscored the importance of inclusivity not just in content but also in narrative structure—highlighting the value of multi-level storytelling that caters to children, learners with disabilities, and professionals alike.

In planning and constructing an accommodation plan for the virtual tour, the study underlined the importance of including accessibility in the core design rather than treating it as an add-on. The use of text-to-speech tools, subtitles, color contrast options, and streamlined navigation pathways shows how technology may help individuals with visual, hearing, motor, and cognitive disabilities learn and engage more effectively. Collaboration between SPED specialists and ICT experts reinforced the accommodation framework, ensuring that the design adhered to Universal Design for Learning (UDL) standards.

During the implementation phase, a varied set of respondents tested the virtual tour website, and they considered it to be both intuitive and educational. However, technical constraints such as internet connectivity and device compatibility arose as obstacles. These issues were addressed with recommendations for a lightweight design, offline capabilities, and cross-platform compatibility. The incorporation of feedback and analytics capabilities was also deemed necessary for monitoring engagement, tracking accessibility tool usage, and detecting navigation concerns for future improvement.

The review of accessibility and usability revealed that the built website satisfied its inclusion goals, with good ratings for navigational ease, clarity, and accessibility. Nonetheless, the study revealed the need for more stringent testing methodologies, such as task-based usability assessments and benchmarking against established standards like the Web Content Accessibility Guidelines (WCAG). These would provide more objective statistics and ensure compliance with international accessibility standards, thereby increasing the site's legitimacy and influence in educational tourism.

Finally, the enhancement of the virtual tour website established a forward-thinking vision based on iterative improvement, stakeholder participation, and technical advancement. By incorporating future-ready features like AI narration, augmented reality compatibility, and prompt-engineering tools like Google Maps and Lovable.dev, the platform presents itself as an evolving example for inclusive digital design. Overall, the study found that an inclusive virtual tour website is more than just a technology product; it is a transformative teaching tool that promotes empathy, accessibility, and cultural knowledge. By combining human-centered design, accessibility standards, and constant innovation, the TG Monch Inclusive Virtual Tour Website lays the groundwork for how digital tourism might become truly inclusive and empowering for all.

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Recommendations

Based on the study's findings, it became evident that creating an Inclusive Virtual Tour Guide Website involves more than just technical innovation—it also demands a strong commitment to accessibility, empathy, and user interaction. The findings demonstrated that inclusive design benefits all users, particularly when marginalized groups, such as students with special education requirements, are prioritized. Prompt engineering proved to be an invaluable tool in ensuring that accessibility features and user-centered concerns were incorporated into prototypes from the start. However, the findings underscored that inclusivity goes beyond meeting criteria; it must also resonate emotionally with users, representing authentic voices, spaces, and accommodations that create trust and belonging. With these observations, the following recommendations are made to improve the creation, implementation, and sustainability of inclusive virtual tour platforms, ensuring that accessibility is not an afterthought but rather a basic design element. First, when assessing tour itineraries in Cebu City tourist attractions, coverage was confined to specific sites, eliminating other culturally rich or rural places that may present distinct accessibility problems. Future research should broaden the breadth of itineraries to include underrepresented tourism destinations, particularly in heritage and rural areas, to offer a more comprehensive and inclusive virtual tour experience. Second, while the accommodation plan was intended to address broad accessibility, it did not fully integrate adaptive technologies to satisfy the specific needs of people with cognitive, visual, or hearing impairments. Additional research is needed to examine adaptive and assistive technology targeted to these various disability classifications in order to refine and personalize accommodation strategies.

Third, the virtual tour website was only implemented as a prototype and tested with a small set of respondents, which limited insights into large-scale usability and scalability. Future studies should include a broader implementation with larger and more diversified groups of end users, including international participants, to assess both cultural adaptability and technical strength. Fourth, the evaluation of accessibility and usability was based primarily on qualitative comments and observational data, with no use of conventional accessibility compliance tools or usability metrics. To improve dependability, future research should combine user feedback with systematic accessibility audits like WCAG compliance testing and usability performance measurements. Finally, future research and implementations should make use of emerging tools and platforms like Lovable.dev to enable rapid engineering, map integration, and generative processes. Specifically, incorporating maps compatible with Lovable. dev, dev, Google Maps, or Google Earth APIs can improve spatial accuracy and user immersion,dev, Google Maps, or Google Earth APIs can improve spatial accuracy and user immersion, whereas embedding interactive video sources and AI-driven navigation cues can deliver a more personalized and context-aware virtual experience. These integrations not only extend accessibility capabilities, but also enable real-time updates, voice-assisted navigation, and multi-sensory experiences that benefit a wide range of users. By merging prompt engineering with geospatial technology, virtual tour platforms can become more adaptable, intelligent, and inclusive to global audiences. The virtual tour website's enhancements were purely functional and visual, with no exploration of sophisticated features such as real-time interactivity, multilingual accessibility, or AI-driven personalization. As a result, future research should look at the integration of AI technologies that can offer adaptive interfaces, real-time advice, multilingual support, and immersive experiences, thereby ensuring greater inclusion.

Based on the study's findings and identified gaps, the following recommendations are provided for each specific objective to improve inclusivity, accessibility, and user engagement in the development and implementation of virtual tourism platforms, particularly for learners and individuals with special needs.

For Objective 1 – Analyze the tour itineraries in Cebu City tourist spots

Future research and development initiatives should include a comprehensive mapping and classification of Cebu City tourist destinations, emphasizing cultural, historical, and recreational categories while documenting accessibility features such as ramps, sensory-friendly areas, and visual aids. Collaboration with the Department of Tourism (DOT) and the Cebu City Tourism Commission is encouraged to ensure compliance with the Accessible Tourism Framework for the Philippines (DOT, 2022). Benchmarking to UNESCO's Guidelines on Inclusive and Accessible World Heritage Sites (UNESCO, 2021) and UNWTO's Inclusive Recovery Guide

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(UNWTO, 2020) might help improve the design of adapted itineraries. Furthermore, multi-level storytelling should be used to ensure universal involvement by providing simplified narratives for children and cognitively varied learners, as well as complex interpretative layers for educators and professionals.

For Objective 2 – Design and develop an accommodation plan for the virtual tour guide

The development of an inclusive accommodation framework should be governed by Universal Design for Learning (UDL) principles (CAST, 2018), which ensure equal access for users of diverse abilities. Developers should use a standardized accessibility matrix that specifies the appropriate assistive technologies for each disability type, such as screen readers for visual impairments, closed captioning and sign-language interpretation for hearing impairments, and voice-command navigation for motor limitations. Collaboration with SPED specialists, occupational therapists, and accessibility technologists is essential for refining and testing these modifications in real-world conditions. This co-design method guarantees that accessibility is not an afterthought, but a fundamental component of user experience design, in line with best practices in adaptive tourism development (Iankova et al., 2020).

For Objective 3 – Implement the developed virtual tour website

During implementation, developers should create a strong and lightweight system architecture that works effectively across devices and under varied internet conditions. According to W3C web accessibility and responsive design standards (W3C, 2018), the platform should include offline and low-bandwidth versions such as downloaded static tours, 360° panoramic pictures, and captioned video modules. The integration of analytics dashboards will enable real-time monitoring of engagement, accessibility feature usage, and potential navigation hurdles, in line with user-centered design techniques (Norman & Nielsen, 2020). Furthermore, regular technical audits, cross-platform testing, and security validation should be carried out to ensure platform dependability and inclusivity across a wide range of learning contexts.

For Objective 4 – Evaluate accessibility and usability of the developed website

Evaluation should go beyond self-reported surveys and include task-based usability testing to assess users' navigation success rates, completion time, and accuracy (ISO 9241-210:2019). Benchmarking the platform against Web Content Accessibility Guidelines (WCAG 2.1/2.2) (W3C, 2023) assures compliance with international accessibility standards. Furthermore, think-aloud procedures and eye-tracking investigations can be used to detect invisible usability hurdles, particularly for users with cognitive or visual impairments (Lazar et al., 2017). These data-driven reviews will make the platform's accessibility measurable, transparent, and continually improvable, in line with worldwide digital inclusion goals.

For Objective 5 – Enhance the virtual tour guide website

To ensure responsiveness to user needs and technology changes, the enhancement process should use an iterative design and assessment cycle (prototype, test, refine, and retest) (Willis, 1999). Future enhancements should include new technologies like artificial intelligence (AI) for adaptive storytelling, augmented reality (AR) and virtual reality (VR) for immersive exploration, and the Lovable.dev and Google Maps APIs for real-time navigation and prompt engineering. A structured feedback roadmap must be developed, combining stakeholder contributions from SPED instructors, ICT specialists, and parents to create an actionable long-term development strategy. Training programs for inclusive tour guiding and digital facilitation are also recommended to ensure that adaptive tourism practices are implemented with a human-centered approach.

Taken together, these gaps indicate the need for more complete, technology-driven methods, and as such, a suggested topic for future research is "Expanding Accessibility Through Adaptive Technologies: A Comprehensive Study on Enhancing Inclusive Virtual Tour Platforms in Cebu and Beyond."

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Output of the Study: TG Monch Inclusive Virtual Tour Website

Rationale

The TG Monch Virtual Tour website is intended to be an open and entertaining digital platform for learning about Cebu's rich historical and cultural legacy, as well as its various influences. Recognizing the growing demand for accessible, technology-driven learning experiences, the website welcomes all visitors, including those with special needs, by including universal design principles such as screen-reader compatibility, changeable text sizes, and easy navigation.

The software, developed with prompt engineering techniques by Lovable.dev, uses YouTube video sources for immersive storytelling and Google Earth integration for interactive 3D exploration of significant cultural locations. This combination of tools provides a dynamic experience that overcomes physical distance and mobility restrictions. The website provides four major tour options: the American Era Heritage Tour, the Japanese Era Heritage Tour, the Cebu City Heritage Tour, and a Personalized Tour feature. Each tailored tour focuses on major monuments, artifacts, and narratives that influenced Cebu's character, ranging from the architectural and social transformations of the American period to wartime experiences of Japanese occupation and the vibrant local customs embedded in Cebu's urban setting. The Personalized Tour enables visitors to personalize their virtual tour based on their interests, resulting in a learning experience suited to individual tastes.

By adding interactive multimedia elements like as 360-degree panoramas, audio tours, and historical annotations, the TG Monch Virtual Tour makes heritage education more dynamic and user-friendly.

Finally, this project functions as both an instructional resource and a cultural preservation initiative. It raises awareness of Cebu's historical history among a global audience, fosters appreciation for the Philippines' complex past, and demonstrates how modern technology and inclusive design can connect people of all abilities to their common heritage.

The primary result of this research is the TG Monch Inclusive Virtual Tour Website, a digitally improved and accessibility-focused platform meant to deliver an inclusive and instructive virtual tourism experience for all sorts of learners, including those with special needs. This innovative website combines technology, accessibility, and cultural learning by providing an adaptive digital environment that replicates real-life tourism experiences at Cebu City's main cultural, historical, and educational attractions. It functions as both a learning tool and an inclusive tourist model, encouraging equitable participation, sensory engagement, and digital exploration—ensuring that everyone, regardless of ability, can traverse and appreciate Cebu's rich past.

The TG Monch Inclusive Virtual Tour Website was created in response to perceived gaps in accessibility, usability, and inclusivity across traditional and digital tourism experiences. The study discovered that previous virtual tours frequently lacked detailed maps of accessible destinations, accommodation strategies for specific disabilities, and adaptive learning frameworks for varied users. To solve these issues, the website was developed using Universal Design for Learning (UDL) and Adaptive Tourism Theory ideas in mind, guaranteeing that every user may interact with the platform based on their own requirements.

The rationale is also based on the growing demand for Accessible and Adaptive Tourism, as emphasized by the Department of Tourism (DOT, 2022) and the World Tourism Organization (UNWTO, 2020), both of which emphasize the importance of digital inclusion and empathy-driven tourism experiences. The TG Monch platform was designed not only as a virtual place, but also as a learning environment that allows people with disabilities to experience tourism without physical or sensory limitations.

Enhanced Features of the TG Monch Inclusive Virtual Tour Website

The website's upgraded features directly respond to the identified research gaps and comply with the recommendations made for each Specific Objective (SOP).

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- **Interactive and Categorized Itinerary Mapping** – The website contains a structured digital map of Cebu City tourism attractions classified as cultural, historical, or recreational, along with accessible remarks (ramps, rest areas, sensory spaces). This upgrade fills a gap in Objective 1—the lack of thorough mapping and benchmarking of accessible itineraries—and implements the recommendation to incorporate UNESCO accessibility standards and multi-level storytelling.
- **Customizable Accessibility Dashboard** – A significant enhancement in response to Objective 2, the site has a user-controlled accommodation panel that lets visitors change font size, color contrast, audio narration, captions, and navigation modes. This fills a vacuum in disability-specific tools and incorporates the recommendation for a matrix of accessibility elements established with input from SPED professionals and accessibility specialists.
- **Lightweight and Cross-Platform Functionality** – In response to Objective 3, the platform was modified to work seamlessly with mobile devices, tablets, and low-bandwidth internet connections. This update directly tackles the gap in system compatibility and technical foundation, and it is consistent with the advice for offline versions and performance-optimized virtual tours (such as downloadable panoramic photos and 360° views).
- **Analytics and Feedback Integration** – To improve usability evaluation (Objective 4), the website incorporates built-in analytics tools that monitor user engagement, time on task, and accessibility feature usage. This feature closes the feedback loop and represents the recommendation to include real-time analytics and performance-based usability testing in accordance with WCAG 2.2 standards (W3C, 2023).
- **AI-Enhanced and Future-Ready Components** – The final update is consistent with Objective 5, including AI-driven narration, Augmented Reality (AR) previews, and interaction with Google Maps and Lovable.dev for faster engineering. These forward-thinking enhancements close the gap in iterative design and future-proofing, and they adhere to the recommendations for scalability, continuous improvement, and responsiveness to evolving technology.

The TG Monch Inclusive Virtual Tour Website addresses the research's primary deficiencies. It translates the findings into practical design and functional solutions. Whereas the shortcomings identified a lack of accessibility tools, user differentiation, and technical integration, the improved features directly integrate solutions like tailored accessibility settings, multi-device operability, and an inclusive narrative. Furthermore, the incorporation of analytics and AI features guarantees that the platform remains adaptable and data-driven, reflecting the study's suggestion for iterative design cycles and ongoing evaluation. Finally, the output reflects the study's purpose of integrating education, technology, and inclusivity. The TG Monch Inclusive Virtual Tour Website is a prototype of inclusive innovation, combining accessible design principles, adaptive tourism frameworks, and future-oriented technologies to provide a platform that not only educates but also empowers users of all abilities to explore, learn, and connect through the digital reimagining of Cebu's cultural and historical landscapes. It is accessible via this link: https://lovable.dev/projects/297df916-05c0-43b6-9446-0c456bc480ce.

Website Content: Japanese Era Heritage Tour

The following describes the content of the website’s tour modules as presented to users.

The main page will take you back in time to one of Cebu's most difficult periods. The Japanese occupation of the island lasted from 1942 to 1945, and it was characterized by wartime difficulties, resilience, and acts of quiet heroism. This virtual tour encourages you to visit major sites that saw the unfolding of Cebu's wartime drama, providing an immersive experience to comprehend how the people of Cebu endured adversity while maintaining their spirit.

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Figure 5. Landing Page of the Japanese Era Virtual Tour Module of the TG Monch Inclusive Virtual Tour Website

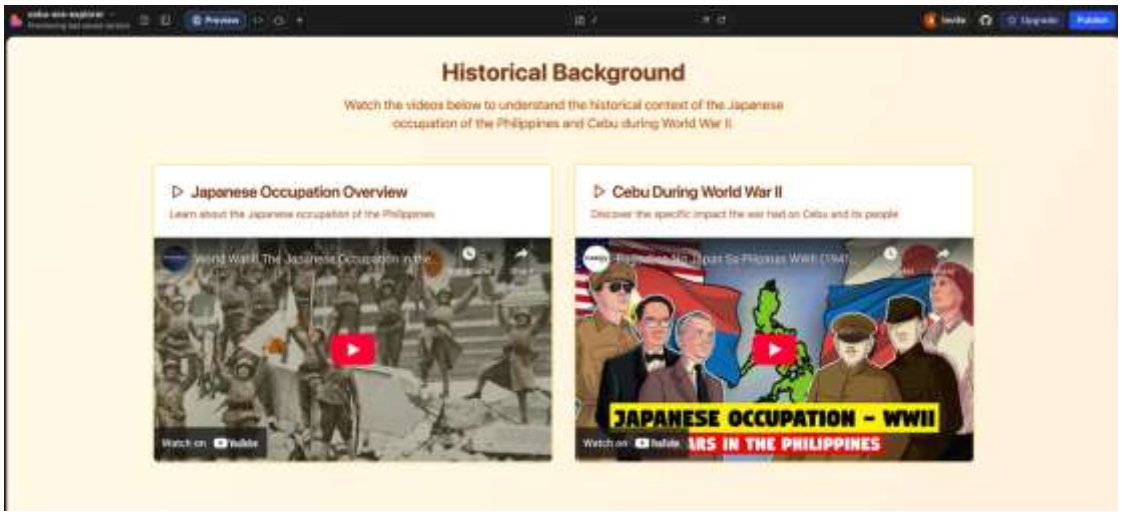


Discover Museo Sugbo, a former provincial jail with echoes of wartime confinement in its stone walls. Explore Casa Gorordo, a heritage property that depicts both the disruption and continuity of Cebuano family life throughout the occupation. Stand at the ancient Fort San Pedro, Cebu's oldest military defense stronghold, which has witnessed Japanese military activity and local resistance. Visit the remote Busay Cave, a natural hideaway where insurgents and civilians sought safety and strategized in secret.

This Japanese Era Virtual Tour, which includes interactive photographs, rich narratives, and archival insights, is more than just a history lesson; it is an homage to the Cebuanos' resilience and heroism during these terrible years. Begin your adventure and explore Cebu's wartime history from the comfort and safety of your own screen.

The Video Section enhances the experience with professionally curated YouTube videos. These videos, interviews, and archive footage provide an overview of the Japanese occupation and Cebu's WWII history. Viewers learn about the invasion, local resistance, and final independence, which deepens their awareness of how Cebuanos persevered throughout one of the island's most difficult eras.

Figure 6. Historical Background Section with Embedded Videos



The Historic Site section will highlight the events that occurred during the Japanese occupation of Cebu from 1942 to 1945. Several prominent landmarks played important roles and are now enduring emblems of the island's fortitude. Casa Gorordo, a 19th-century ancestral residence, exemplified Cebuano family life and customs despite wartime disruptions. Fort San Pedro, the city's oldest military fortress, was captured and used by Japanese forces as a strategic post and storage facility, subsequently becoming a focal point of guerrilla surveillance and resistance operations. The seashore in Talisay City, today known as Landing and Freedom Park, became the historic site of

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the Allied landing in March 1945, kicking off Cebu's freedom and celebrating the united bravery of Filipino insurgents and American soldiers. High in the highlands, the remote Busay Cave served as a major sanctuary and planning site for guerrilla fighters and civilians attempting to elude Japanese patrols. Meanwhile, Museo Sugbo, previously the provincial jail or Carcel de Cebu, was used as a detention facility for prisoners of war, suspected insurgents, and civilians during the occupation. These sites portray a cohesive story of adversity, resilience, and the unbreakable spirit of the Cebuanos who survived and eventually triumphed over one of the most terrible periods in the island's history.

Figure 7. Explore Historic Sites Section (Museo Sugbo, Fort San Pedro, and Casa Gorordo)

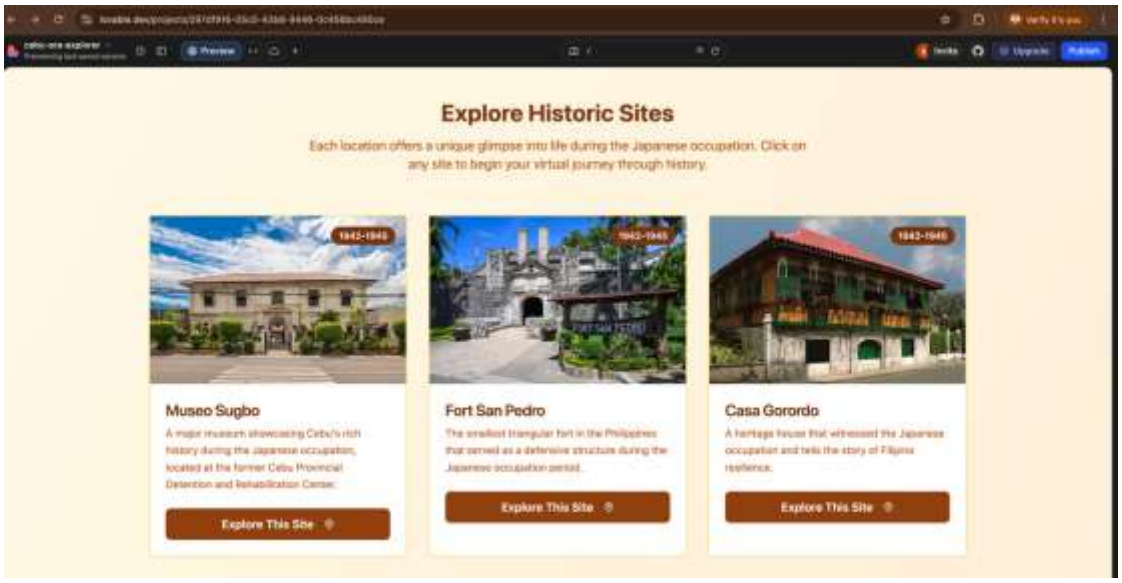
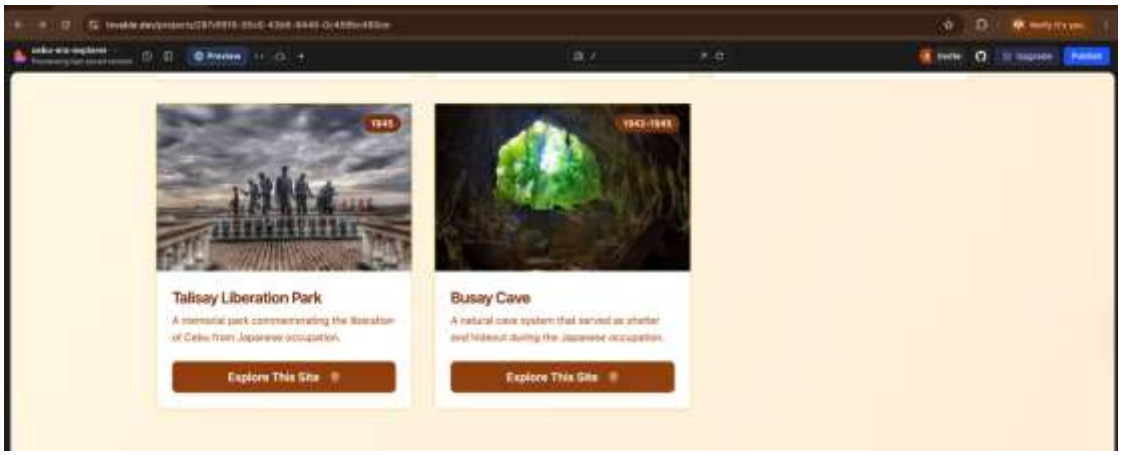


Figure 8. Explore Historic Sites Section (Talisay Liberation Park and Busay Cave)



Website Content: Cebu Churches

1. Basilica Minore del Santo Niño de Cebu (Cebu City)

The Basilica Minore del Santo Niño, erected in 1565 by Fray Andrés de Urdaneta and Miguel López de Legazpi, is the Philippines' oldest Roman Catholic church. In 1521, Ferdinand Magellan presented Rajah Humabon's wife with the renowned figure of the Santo Niño (Child Jesus). The basilica is a national historical site and the centerpiece of the Sinulog Festival, symbolizing Cebu's strong Catholic faith and colonial heritage. (National Historical Commission of the Philippines, 2015).

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2. Cebu Metropolitan Cathedral (Cebu City)

The Cebu Metropolitan Cathedral, built in the late 16th century, serves as the seat of the Archdiocese of Cebu. It represents clerical power and resilience, having been rebuilt several times following World War II bombardment. Its architecture is influenced by Baroque and Spanish colonial styles, reflecting Cebu's status as the Far Eastern cradle of Christianity. (Archdiocese of Cebu Archives, 2018).

3. St. Catherine of Alexandria Parish Church (Carcar City)

The Carcar Church, constructed in 1860, is renowned for its Byzantine-Romanesque style, strong coral stone walls, and twin bell towers. It celebrates St. Catherine of Alexandria and is one of southern Cebu's best-preserved colonial churches. The structure combines indigenous workmanship and Spanish artistry, making it an important cultural and religious heritage monument. (National Museum of the Philippines, 2019).

4. Patrocinio de Maria Church (Boljoon, Cebu)

The Patrocinio de Maria Church in Boljoon was proclaimed a National Cultural Treasure in 1783. Known as the "El Gran Baluarte," it served as both a place of prayer and a stronghold against Moro incursions. Its Baroque-inspired style and beautiful carvings, which include retablos and frescoes, serve as a living witness to Cebu's colonial history and spiritual devotion. (National Commission for Culture and Arts, 2016).

5. San Guillermo de Aquitania Church (Dalaguete, Cebu)

The Dalaguete Church, dedicated to St. William the Hermit, was built in 1825 from coral stones. It has enormous buttresses and a characteristic Neoclassical façade, which represent power and endurance. For nearly two centuries, the church has been a center of faith and community life in Dalaguete, making it a culturally significant institution. (Cebu Provincial Tourism Office, 2021).

6. St. Michael the Archangel Church (Argao, Cebu)

The Argao Church, built in 1788, combines Rococo and Baroque architectural styles, with beautifully painted ceilings and delicate stucco work. It honors St. Michael the Archangel, the town's patron saint, and is part of Cebu's Heritage Churches Trail, which encourages religious tourism and cultural preservation. (Heritage Conservation Society, 2020)

7. Nuestra Señora del Pilar Parish Church (Sibonga, Cebu)

The Sibonga Church, founded in 1846, is dedicated to Our Lady of the Pillar and has a mix of Gothic and Baroque architecture. It is a Marian pilgrimage destination, attracting people for its annual fiesta events and cultural significance as part of southern Cebu's religious tapestry. (Department of Tourism, Region VII, 2022).

Cebu Province's churches are living monuments to Philippine colonial history, art, and resilience, in addition to being sites of Catholic faith. They tell the story of Cebu as the cradle of Christianity in Asia, maintaining centuries of architecture, traditions, and spiritual devotion. These hallowed sites continue to attract pilgrims and heritage visitors, cementing Cebu's reputation as a beacon of faith and culture in the Visayas.

Website Content: Cebu Beaches

1. Bantayan Island (Northern Cebu)

Bantayan Island, off the northwestern coast of Cebu, is known for its white sand beaches and laid-back atmosphere. The cities of Santa Fe, Bantayan, and Madridejos have lengthy stretches of powdery beaches, such as Kota Beach and Sugar Beach, which are known for their crystal-clear waters and peaceful atmosphere. The island's robust fishing and tourism businesses coexist, making it an example of sustainable coastal development. (Department of Tourism, Region VII, 2022).

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2. Malapascua Island (Daanbantayan, Cebu)

Malapascua Island is renowned as a diving paradise, and Monad Shoal is the only location in the world where thresher sharks may be observed on a regular basis. Aside from diving, there are quiet beaches such as Bounty Beach, which is lined with modest resorts and dive shops. The island displays Cebu's ability to combine marine biodiversity conservation with community-based tourism (Philippine Department of Environment and Natural Resources, 2020).

3. Moalboal (Southwestern Cebu)

Moalboal is a popular diving and snorkeling location, known for the Sardine Run, a year-round natural phenomenon in which millions of sardines congregate near the beach. Its primary attractions include Panagsama Beach and White Beach (Basdaku), which offer a colorful blend of local culture and adventure tourism. Moalboal showcases eco-tourism methods that benefit coral reefs and marine ecosystems (Cebu Provincial Tourism Office, 2021).

4. Sumilon Island (Oslob, Cebu)

Sumilon Island, which is privately managed by a resort, is known for its shifting sandbar that changes shape with the tides. It was one of the first marine sanctuaries in the Philippines, created in 1974. The island is located near Oslob's whale shark viewing region, resulting in a synergistic marine tourist circuit that promotes sustainable tourism management. (National Economic and Development Authority, Region VII, 2020).

5. Camotes Islands (Eastern Cebu)

The Camotes Islands, which include Poro, Pacijan, Ponson, and Tulang, are famed for their pristine beaches and freshwater lakes like Lake Danao. Santiago Bay and Mangodlong Beach are popular among both locals and tourists due to their smooth white sand and tranquil blue waters. The islands' limited commercialization makes them ideal for low-impact tourism and environmental preservation. (Department of Tourism, 2023)

6. Alcoy and Dalaguete Beaches (Southeastern Cebu)

The villages of Alcoy and Dalaguete provide calm coastal retreats, such as Tingko Beach, a crescent-shaped beach with pristine waters ideal for swimming. These beaches are popular with domestic tourists and represent community-driven tourism efforts that create local jobs while maintaining natural balance. (Cebu Provincial Government, 2021).

Cebu Province's beaches are not just popular tourist sites but also symbols of environmental and cultural peace. They exemplify the province's inclusive tourism philosophy, which prioritizes sustainability, accessibility, and respect for local people. Cebu's beaches continue to make major contributions to the region's tourism industry and environmental awareness because of ongoing collaboration among government agencies, business stakeholders, and locals.

Website Content: Cebu Hotels

1. Luxury and Heritage Hotels

Cebu's luxury and heritage hotels represent the province's historical richness and current elegance. The Waterfront Cebu City Hotel and Casino in Lahug and the Radisson Blu Cebu near SM City Cebu are high-end establishments with cutting-edge amenities, foreign cuisine, and convention centers that cater to global events. Furthermore, Montebello Villa Hotel, one of Cebu's oldest garden resorts, features Spanish-colonial architecture surrounded by lush settings. These hotels have integrated inclusive design features such as wheelchair-accessible rooms, ramps, elevators, and Braille-marked signage to ensure that all guests are comfortable (Department of Tourism, 2023; Business Mirror, 2022).

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2. Beach Resorts and Island Hotels

Cebu's coastlines, including Mactan, Moalboal, Bantayan, and Malapascua, have a broad choice of beachside resorts that mix luxury and environmental sustainability. Shangri-La's Mactan Resort and Spa is worldwide renowned for its marine sanctuary and family-friendly amenities. Bluewater Maribago, Plantation Bay Resort, and Crimson Resort and Spa prioritize sustainable tourism practices, hiring locals, and collaborating with the Department of Environment and Natural Resources (DENR) on marine conservation. These hotels also offer adaptive features like pool lifts, accessible restrooms, and staff training for assisting people with impairments (Cebu Provincial Tourism Office, 2021; NEDA Region VII, 2020).

3. Business and Mid-range Hotels

Mid-range hotels in Cebu City include the Quest Hotel, Mandarin Plaza, Bayfront Hotel, and Harolds Evotel, which cater to both visitors and professionals attending conferences, educational excursions, and cultural events. These hotels frequently act as accommodation partners for academic and government events, providing inclusive meeting spaces and convenient transportation alternatives. Hotels in the municipalities, such as the Maayo Hotel in Mandaue, Ocean Vida in Malapascua, and Anika Island Resort in Bantayan, illustrate the province's growing mid-tier market and its commitment to digital inclusivity through virtual tours, online booking accessibility, and multilingual support (Department of Tourism Region VII, 2023; Cebu Hotel and Resort Association, 2021).

4. Eco-Lodges and Community-Based Accommodations

In order to encourage sustainable and inclusive tourism, Cebu Province also supports eco-lodges and homestays run by local residents. Eco-resorts such as Bohol Eco-Tourism Village and Mangodlong Paradise Beach Resort may be found in destinations such as Alcoy, Dalaguete, and the Camotes Islands, and they emphasize environmental conservation, cultural immersion, and social inclusion. These businesses participate in Barangay Tourism Councils as part of the Department of Tourism's Community-Based Tourism (CBT) programs, which ensure that locals, including people with disabilities, benefit directly from tourism profits (Department of Tourism, 2022; UNDP Philippines, 2021).

5. Inclusive Tourism and Smart Hospitality Innovations

Modern Cebu hotels are rapidly incorporating smart technology and AI-powered systems to improve visitor experience and accessibility. Some facilities are experimenting with voice-activated room controls, virtual concierge services, and inclusive digital interfaces that work with assistive technologies. The TG Monch Inclusive Virtual Tour Website project complements these developments by giving virtually accessible previews of hotel facilities, allowing customers, particularly those with mobility or sensory issues, to make educated accommodation decisions prior to their arrival. This aligns with the Department of Tourism's Accessible Tourism Framework, which pushes for equal participation of all travelers, including those with disabilities, in tourism activities (Department of Tourism, 2023; World Tourism Organization, 2021).

Cebu's hotel business is a microcosm of inclusive tourist growth, bringing culture, technology, and accessibility together. The province's ongoing accreditation by the Department of Tourism and the ASEAN Tourism Standards Awards demonstrates its leadership in hospitality and service innovation. Cebu continues to set an example for the hospitality industry in upholding universal design principles by implementing inclusive policies, adaptive infrastructure, and digital accessibility solutions such as the TG Monch Inclusive Virtual Tour Website.

Website Content: Cebu Restaurants

1. Heritage and Traditional Dining

Cebu's status as a cultural and historical hub is best reflected in its heritage restaurants, which serve traditional Visayan and Spanish-influenced cuisine. Casa Verde, Cafe Laguna, and Lantaw Native Restaurant are among the most well-known places, serving Filipino comfort food and native specialties among gorgeous vistas. Many of these eateries emphasize Cebu's distinctive dishes, such as Lechon Cebu, puso (hanging rice), and ngohiong, which all represent the province's culinary inventiveness. Heritage dining venues often function as cultural

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learning places, frequently incorporating participatory storytelling or menu translations to promote inclusivity among both local and foreign tourists (Philippine Daily Inquirer, 2022; Department of Tourism, 2023).

2. Coastal and Island Dining Experiences

Cebu's coastline topography enriches its restaurant landscape, which includes several seaside and island dining options. On Mactan Island, restaurants such as Abaca Restaurant, Cowrie Cove (Shangri-La), and Azure Beach Club mix upscale cuisine with a beachfront setting. Meanwhile, in Moalboal, Bantayan, and Malapascua, modest seaside eateries like The Pleasure Principle Restobar and Amihan Restaurant focus on fresh seafood and ethical sourcing. These enterprises actively engage in eco-culinary tourism, promoting the use of locally caught fish, organic products, and low-waste operations in accordance with Cebu's Sustainable Tourism Development Framework (Cebu Provincial Tourism Office, 2021; NEDA Region VII, 2020).

3. Urban and International Cuisine

Cebu City and Mandaue City are home to an increasing number of international eateries, demonstrating the province's global appeal. The Pig & Palm, Anzani Mediterranean Restaurant, and La Vie Parisienne introduce worldwide eating standards to the local scene, catering to visitors, expats, and international students. These restaurants add to Cebu's status as a culinary gateway to Central Visayas by serving a variety of cuisines, including Japanese, Korean, Italian, and Middle Eastern. The majority of these establishments include accessible features such as ramps, broad dining arrangements, Braille menus, and accessible restrooms, demonstrating their commitment to universal design principles (Cebu Chamber of Commerce, 2022; DOT Region VII, 2023).

4. Community-Based and Eco-Friendly Dining

Beyond the cities, various community-based eateries and farm-to-table cafés around the province, particularly in Dalaguete, Argao, and Balamban, celebrate Cebu's agricultural heritage and sustainable food systems. Examples include The Farmhouse Resto Café and Balay sa Busay, both of which emphasize local ingredients and indigenous recipes. These institutions support local farmers and food artisans, demonstrating the province's commitment to broad economic involvement. Many of these restaurants also have accessible features and multilingual menus, guaranteeing that both locals and tourists with disabilities may enjoy the same experience (UNDP Philippines, 2021; Department of Agriculture, 2022).

5. Inclusivity, Digitalization, and Smart Dining

With the rise of digital tourism, Cebu's restaurants are increasingly using virtual tours, QR-based menus, and AI-powered ordering systems to improve accessibility. The TG Monch Inclusive Virtual Tour Website builds on this concept by displaying interactive restaurant previews that allow consumers to visually explore facilities, food options, and eating ambiance. This inclusion benefits not just people with disabilities, but also educators, students, and international visitors who want to plan culturally immersive dining experiences ahead of time. Such integration contributes to the DOT's National Tourism Development Plan (NTDP) 2023-2028, which emphasizes inclusion and smart tourism technology as important drivers of regional tourism growth (Department of Tourism, 2023; World Tourism Organization, 2021).

Cebu's restaurant business serves as an important cultural and economic pillar, connecting legacy, innovation, and inclusivity. Whether through heritage dining in Cebu City, seaside experiences in the islands, or community-based eateries in rural districts, each establishment helps to shape the province's inclusive tourist identity. The continuing digital transformation, particularly through projects such as the TG Monch Inclusive Virtual Tour Website, guarantees that Cebu's culinary environment becomes more accessible, engaging, and globally connected, preserving its cultural heritage while catering to the demands of all visitors.

Website Content: Cebu Museums

1. National Museum of the Philippines – Cebu

The National Museum of the Philippines - Cebu (NM-Cebu), located at the former Cebu Customs House in Plaza Independencia, will open in August 2023 as a premier repository of Cebu's historical and artistic riches. It houses

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five galleries that highlight Cebu's marine heritage, colonial history, religious art, and archaeological artifacts. The museum has accessible design elements like ramps, tactile flooring, Braille signage, and guided tours for the visually and hearing-impaired. NM-Cebu promotes the national government's objective of decentralizing museum access and promoting regional cultural equity, allowing Cebuanos to experience heritage in their own community (National Museum of the Philippines, 2023; Philippine News Agency, 2023).

2. Museo Sugbo (Cebu Provincial Museum)

Located on M.J. Cuenco Avenue, Museo Sugbo is Cebu's provincial museum, housed in the former Carcel de Cebu (Cebu Provincial Jail), which was built in 1871. The museum's exhibits cover Cebu's political history, local heroes, World War II relics, and the evolution of Philippine currency. It also comprises the National Museum Regional Gallery and the Philippine National Police Museum, which illustrate Cebu's complex historical narrative. Museo Sugbo continues to develop inclusive initiatives, such as student-friendly guided tours, audio-visual exhibitions, and multilingual content, to make history more accessible to students and people with disabilities (Museo Sugbo Archives, 2022; Cebu Provincial Government, 2021).

3. Casa Gorordo Museum

Casa Gorordo Museum, operated by the Ramon Aboitiz Foundation Inc. (RAFI), is the restored 19th-century home of Cebu's first Filipino bishop, Juan Gorordo. It depicts the late colonial period's combination of architectural and cultural influences from Spain, China, and the Philippines. Casa Gorordo combines history and current technology in its immersive exhibits, which include interactive displays, holographic narrations, and digital heritage storytelling. The museum also offers inclusive heritage workshops for educators, special education teachers, and local craftspeople, promoting intergenerational learning and accessibility (Ramon Aboitiz Foundation Inc., 2022; Philippine Heritage Society, 2021).

4. The Archdiocesan Cathedral Museum of Cebu

The Archdiocesan Museum of Cebu, located near the Cebu Metropolitan Cathedral, focuses on the province's religious and ecclesiastical history. Its exhibitions include liturgical objects, antique sculptures, and vestments that highlight Cebu's history as the cradle of Christianity in the Philippines. The Archdiocese of Cebu maintains the museum, which encourages spiritual tourism. Accessibility has been improved by guided tours, clear visual labeling, and virtual exhibits. This is consistent with the province's drive for inclusive religious heritage tourism, allowing pilgrims and students to study the museum's collection via accessible digital platforms(Archdiocese of Cebu, 2022; Department of Tourism, 2023).

5. Museo Parian sa Sugbo and Other Community Museums

Museo Parian sa Sugbo, located in the Jesuit House of 1730 in the Parian neighborhood, is one of the Philippines' oldest heritage monuments. It serves as both a museum and a heritage conservation site, with exhibits of antique furniture, ceramics, and photographs depicting the lives of Cebu's mestizo family. Meanwhile, smaller municipal museums, such as the Carcar City Museum, Talisay City Museum, and Dalaguete Heritage Center, showcase local traditions, textile crafts, and town histories. These institutions exemplify Cebu's dedication to grassroots heritage preservation and inclusive tourism by offering accessible learning opportunities for students and local visitors (Cebu Provincial Tourism Office, 2021; NEDA Region VII, 2020).

Cebu Province's museums are more than just collections of relics; they are living schools for culture and inclusion. By combining history preservation with digital and physical accessibility, these museums exemplify the province's vision of inclusive cultural tourism. The TG Monch Inclusive Virtual Tour Website complements these efforts by giving virtual access to museum spaces, allowing students, scholars, and people with disabilities to discover Cebu's historical and cultural heritage from afar. Together, these projects contribute to Cebu's status as a heritage destination that welcomes all, preserving the past while making it accessible to the future.

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Website Content: Cebu Malls

1. SM Seaside City Cebu

SM Seaside City Cebu, located in South Road Properties (SRP) in Cebu City, is one of the Philippines' largest malls and SM Prime Holdings' flagship development in the Visayas region. The mall has over 400 retail and food outlets, an IMAX cinema, an Olympic-sized ice skating rink, a Sky Park, and the landmark Seaside Tower, which provides panoramic views of Metro Cebu. It was designed to meet universal accessibility standards and contains ramps, elevators, and designated rest places for people with disabilities and seniors. Its modern architecture and integrated transportation linkages distinguish it as a major lifestyle and tourism destination, adding to Cebu's reputation as a modern metropolis with inclusive spaces (SM Prime Holdings, 2023; Cebu Daily News, 2023).

2. Ayala Center Cebu

Ayala Center Cebu, located in Cebu Business Park, is Ayala Malls' flagship property, with a variety of upscale retail outlets, cinemas, restaurants, and open-air gardens. It is well-known for its environmentally friendly design and accessibility features, making it one of the region's most sustainable and family-friendly malls. The mall's Terraces portion acts as a social focus for both locals and visitors, presenting cultural events, art exhibitions, and lifestyle fairs. Ayala Center Cebu combines inclusive tourism and digital innovation, including online directories, virtual mall tours, and bilingual digital signage—all of which support the goals of the TG Monch Inclusive Virtual Tour Website (Ayala Malls, 2022; Philippine Daily Inquirer, 2023).

3. Robinsons Galleria Cebu

Robinsons Galleria Cebu, located on General Maxilom Avenue, mixes retail, commercial, and hospitality services, including the Summit Galleria Hotel. It serves both business and leisure travelers, making it an ideal stop for city and island trips. The mall has interactive digital maps, accessible parking, and child-friendly facilities, making it convenient for families and people with disabilities. Its proximity to Cebu's port region and heritage monuments, such as Fort San Pedro and the Basilica del Santo Niño, makes it a perfect addition to the province's heritage-to-modernity tourism circuit (Robinsons Land Corporation, 2023; SunStar Cebu, 2022).

4. Island Central Mactan

Island Central Mactan, located near Mactan-Cebu International Airport, serves as a retail and dining destination for tourists visiting Cebu. It features a carefully managed mix of local souvenir shops, multinational brands, and restaurants serving Cebuano cuisine. The mall's architecture prioritizes accessibility and efficiency for visitors, with baggage storage places, currency exchange services, and PWD-friendly facilities. Island Central's proximity to significant resorts and hotels in Lapu-Lapu City strengthens its position in inclusive tourism and provides easy visitor access, particularly for travelers looking for authentic local experiences before leaving (Gaisano Capital Group, 2023; Mactan Economic Tourism Report, 2022).

5. J Centre Mall and Local Shopping Districts

J Centre Mall in Mandaue City and local shopping districts like Colonnade Mall, Elizabeth Mall (E-Mall), and Gaisano Country Mall meet Cebuanos' daily requirements while encouraging small companies and regional products. These centers promote equitable economic growth by organizing trade fairs and local artisan marketplaces for micro, small, and medium-sized enterprises (MSMEs). Many of these malls have upgraded their infrastructure to include barrier-free access, digital directories, and emergency help systems, in accordance with the Accessibility Law (Batas Pambansa Blg. 344) and the province's digital transformation strategy(Department of Trade and Industry Region VII, 2023; Mandaue Business Council, 2022).

Cebu Province's malls and shopping centers are more than just commercial complexes; they represent modernization, inclusion, and tourism convergence. Their use of accessible features, cultural spaces, and digital connectivity is consistent with the goals of the TG Monch Inclusive Virtual Tour Website, which aims to highlight Cebu's inclusivity in both heritage and modern attractions. By incorporating these businesses into the virtual tour, the study supports a full and fair tourism experience that honors Cebu's blend of heritage, innovation, and diversity.

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Website Content: Cebu Historical Sites and Icons

1. Magellan's Cross

Magellan's Cross, a prominent landmark in Cebu, is located in a modest chapel beside the Basilica Minore del Santo Niño in downtown Cebu City. The cross, planted in 1521 on Ferdinand Magellan's orders, represents the foundation of Christianity in the Philippines. The original cross is now protected by tindalo wood and serves as a focal point for religious and historical tourism. As a historical and religious landmark, it draws pilgrims and tourists year-round. Accessibility elements such as ramps and guided tours have been implemented to guarantee that the facility remains accessible to all visitors(National Historical Commission of the Philippines [NHCP], 2022; Cebu City Tourism Commission, 2023).

2. Basilica Minore del Santo Niño

Founded in 1565 by Spanish Augustinian friars, the Basilica Minore del Santo Niño is the Philippines' oldest Roman Catholic church. The treasured figure of the Santo Niño de Cebu, a gift from Magellan to Queen Juana of Cebu, represents the country's deep Catholic faith. The basilica complex contains a museum as well as a newly built candle-lighting area for safety and accessibility. As a pilgrimage destination and cultural asset, it is the main point of Cebu's Sinulog Festival, which celebrates spiritual and cultural togetherness(Department of Tourism Region VII, 2023; NHCP, 2022).

3. Fort San Pedro

Fort San Pedro, located near Cebu City's shoreline, is the Philippines' oldest triangle bastion fort, erected in 1565 under the command of Miguel López de Legazpi. Originally built to guard against pirates and Muslim raids, it eventually served as a military barracks and is now a museum displaying items from Cebu's Spanish colonial period. The fort's well-kept structure and beautiful grounds make it a popular stop for cultural tours. Visitors with vision and mobility disabilities can now take guided tours and see tactile exhibitions(Cebu City Government, 2023; National Museum of the Philippines, 2022)

4. Colon Street

Colon Street, the Philippines' oldest street, was created during the Spanish colonial period and named after Christopher Columbus (Cristobal Colón). Colon, once Cebu City's commercial core, is now a dynamic historical avenue that blends old architecture with modern shop areas. The Cebu City Cultural and Historical Affairs Commission (CHAC)'s heritage conservation activities seek to preserve the city's architectural uniqueness while increasing accessibility. The street's inclusion in the TG Monch Virtual Tour demonstrates Cebu's transformation from a colonial trading hub to a center of modern urban life(CHAC, 2023; Department of Tourism Region VII, 2023).

5. Casa Gorordo Museum

The Casa Gorordo Museum, a magnificently preserved 19th-century mansion in Parian District, provides an accurate look at the Cebuano elite's lifestyle during the Spanish period. The museum, which once housed the first Filipino bishop of Cebu, Juan Gorordo, currently displays ancient furniture, artwork, and religious relics. It is operated by the Ramon Aboitiz Foundation Inc. (RAFI) and follows accessibility criteria, including guided audio tours and wheelchair access. This heritage site serves as an example of inclusive museology and cultural education(RAFI, 2023; National Museum of the Philippines, 2023).

6. Cebu Heritage Monument

The Cebu Heritage Monument, located in the historic Parian District, is a contemporary sculpture created by national artist Eduardo Castrillo that depicts major events in Cebu's history, from Magellan's landing to the beatification of San Pedro Calungsod.The monument, made of bronze, brass, and steel, depicts Cebu's cultural progression. Its open plaza and guided explanatory tours make it a popular teaching location, boosting historical understanding among both students and tourists (Cebu City Tourism Commission, 2023; Castrillo Archives, 2022)

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7. Yap-Sandiego Ancestral House

The Yap-Sandiego Ancestral House, built in the late 17th century, is among the Philippines' oldest residential constructions. It is made of coral stones and timber and combines Spanish, Chinese, and Filipino architectural styles. The mansion, which is still owned by the original owners' descendants, is furnished with antique furniture and religious artifacts. It has been partially converted for accessibility through digital exhibits and online tours, which correspond with the TG Monch Inclusive Virtual Tour Website's goals of increasing diversity in heritage appreciation(NHCP, 2023; Tourism Promotions Board, 2022).

Cebu's historical sites and icons are living testaments to the country's colonial heritage, religious devotion, and cultural persistence. These landmarks, ranging from Magellan's Cross to Fort San Pedro and Casa Gorordo, tell the story of Cebu's transformation from a precolonial commercial center to a vibrant cultural hub. Incorporating these sites into the TG Monch Inclusive Virtual Tour Website enables visitors, especially those with impairments and students in remote locations, to experience Cebu's heritage through accessible, interactive digital platforms. This innovative study not only protects Cebu's past, but also promotes inclusive heritage education and tourism in accordance with national accessibility regulations and UNESCO's Digital Cultural Heritage standards.

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