

Travel partner satisfaction and effectiveness of wayfinder system

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ABSTRACT

The purpose is to describe travel partner satisfaction with the Wayfinder training based on route creation with multiple platforms. Qualitative data analysis highlighted three themes: training effectiveness, portal route building, and user friendliness of the portal. These themes were matched to factors identified by Batavia and Hammer to describe their impact within a contextually relevant framework and support identification of facilitators and barriers: learnability, ease of assembly, operability, and dependability. The online portal was user friendly and easy to use, but time consuming and occasionally malfunctioned. These analyses and observations will facilitate future improvements to the existing training program.

INTRODUCTION

Community mobility can be overwhelming, tedious, and difficult, and transportation can pose a greater challenge to those living with physical and cognitive conditions that impact their level of ability and independence. For those with cognitive deficits, lack of knowledge and confidence on how to use public transportation can further compound the challenges that these individuals face, and can be incredibly discouraging. Individuals with disabilities are being excluded from the community due to a lack of access to public transportation, thereby decreasing opportunity for inclusion and overall quality of life.

The Smart Columbus Initiative, a \$40 billion city-wide grant, initiated the Mobility Assistance for People with Cognitive Disabilities (MAPCD) project, to address the potential use of smartphone technology to minimize barriers for those with cognitive disabilities and increase their success with public transportation use. For this project, The MAPCD partnered with AbleLink Technologies to develop the Wayfinder App [1], an easy-to-use, safe, and efficient smartphone app for those with cognitive disabilities. The Wayfinder app is designed to assist those with cognitive disabilities who have difficulty independently travelling to their jobs, hobbies, and other desired locations. The MAPCD also partnered with the Central Ohio Transportation Association (COTA) to pilot the app and allow participants to practice taking bus routes with the phone app. Using the app, these individuals can practice community navigational skills in real-world contexts to increase their independence.

The participants in the MAPCD study consisted of travelers and travel partners. Travelers are study participants with cognitive deficits who use the app to improve their independence in community transportation. Travel partners are caregivers, family members, guardians, and/or friends of the traveler. Being a caregiver for an individual with cognitive impairments can be time consuming. On average, a caregiver will spend thirteen days each month on tasks such as food preparation, shopping, picking up medications, and most importantly transportation [2].

The travel partners were trained on how to access and use the Wayfinder portal on a smartphone device and/or computer to view and create routes for the traveler. When designing the trainings for the travel partners, different learning theories needed to be considered. Since the MAPCD study focuses on the adult population, the most applicable learning theory is the Adult Learning Theory. Created in 1968 by Malcom Knowles, the theory contains five key aspects which emphasize how adults learn differently from children and their learning strengths: self-concept, adult learner experience, readiness to learn, orientation of learning, and motivation to learn [3]. The Adult Learning Theory is heavily applied and associated with e-learning or learning things via the internet. Pedagogy, children learning, focuses on how children focus and learn from their parents, and as these children develop, they begin to mimic their peers and friends. Andragogy, adult learning, is self-learning and emphasizes an individual's motivation. Adult learning becomes the fundamental base of how these trainings are executed and applied to each travel partner [4].

Past experiences can also play a significant role while applying the adult learning theory. Adults have numerous past experiences that allow them to apply their previous knowledge to new learnings. They can tie existing knowledge to new concepts and improve understanding of novel topics [4]. These concepts of learning are crucial, and if an adult's prior knowledge of a subject is different from what they are learning now, there is potential for difficulty learning new information. Adult learning is also very purpose driven. Children go to school to learn because they are required to, however, an adult learns because they are interested and/or see relevance in the subject matter. For example, by targeting the caregiver population for people with disabilities, we identified an interest of theirs. The more driven the individual and the more interesting the topic, the more likely the adult will successfully self-learn the material. Therefore, the purpose is to describe the travel partners' satisfaction with the trainings based on the creation of the routes made on a smartphone device or in the online computer portal.

METHODS

During the course of this study, the travel partner is trained on how to operate the Wayfinder Route Portal and build their own routes for the travel. The travel partner is shown step by step how to create these routes and then expected to be able to go off on their own and create routes specifically catered towards the traveler. During this process, the Adult Learning Theory has been used to modify and create appropriate trainings for the travel partner. Training began when convenient for the travel partner post-signing a consent form to join the study. The training would begin by explaining the purpose of the Wayfinder app and why a travel partner in this situation may be necessary. Upon further explanation, the travel partner is then shown how to log in and access the route developer portal. Once the travel partner has created a user name and password to log in, the portal trainer does a brief overview on how to build a route. From there, the travel partner is expected to practice and learn how to fully create additional routes on their own. The Adult Learning Theory is applied through the online videos and additional trainings that the travel partner then has access to. These resources are listed on a Smart Columbus Wayfinder Study website to allow the travel partner to increase their knowledge on building a route for the traveler [5]. The website provides a screen recorded video with audio, walking the travel partner through how to build a route. A focus group was conducted after the official trainings to assess the travel partners satisfaction. The focus group also assessed the overall effectiveness of the Wayfinder system. All participants provided informed written consent, or informed written assent with written consent provided by their legal guardian. The Ohio State University Institutional Review Board approved the study. Participants were provided with incentives to participate.

RESULTS

Two focus groups were completed, one in April 2019 and another in November 2019. The focus groups included seven travelers in April of 2019 and two travelers in November of 2019. The two travelers who participated in the November focus group also participated in the April focus group. Finally, the same travel partner participated in both focus groups. After analyzing the focus group for the travel partner only, three primary themes were identified: training effectiveness, portal route building, and user friendliness of the portal (Table 1). Once the themes were identified, the authors matched the themes to the factors identified by Batavia and Hammer [6]. The factors provide a recognized framework for which we can describe the travel partner satisfaction of the Wayfinder portal training. The overall training was effective and easily understood. With the additional resources of the provided website and route building videos, the travel partner emphasized that the training was smooth and easy. Though the training seemed to be efficient, the route building portal itself appeared to be difficult to access at times. The travel partner who participated in this focus group was able to highlight the issue that the portal had "crashed" or was unexpectedly quitting. However, the travel partner did agree that when the route building portal was working appropriately, it was overall easy to use and user friendly.

Table 1. Themes and Factors

Theme	Factors [##]	Example descriptions
Training effectiveness	Learnability	Ability to apply the training materials in developing routes on portal

Portal route building	Ease of Set-up (Assembly), Operability	The portal, when having no technological issues, was easy to use after getting the hang of it. Additionally, the portal was easy to access and maneuver around the portal settings and features.
Portal user friendliness	Dependability	The portal had “crashed” or was unexpectedly quitting.

DISCUSSION

After analyzing focus group results conducted in April 2019 and November 2019, the following three themes emerged: training effectiveness, portal route building, and portal user friendliness. The first, training effectiveness, focuses on the motivation of the travel partner. It is seen that the specific travel partner has a desire or drive to continue building routes and take the traveler on routes because they see the perceived benefit of the potential outcomes. The next theme focuses on the route building in the portal, which is described as ease of set-up and operability. For example, the portal, when having no technological issues, was easy to use after training and practice. Additionally, the portal was easy to access and maneuver around the portal settings and features. Once the route was uploaded from the portal to the smartphone app, the route that was built worked well. The last theme, focuses on user friendliness of the portal, which is described as the reliability and dependability of the Wayfinder ecosystem. An example being how frequently the route building portal would crash and or in combination with the slowness of this portal. Due to this barrier, creating routes becomes time consuming for the travel partner. This makes it difficult to create a route in a quick and efficient manner for the traveler.

In general, travel partners will not do anything if they think these outcomes won't work. The travel partner in this study experienced the benefit with the travel to allow the traveler to practice their autonomy and become more independent out in the community. Due to this perceived benefit, the travel partner continued using the route building portal to create routes for the travel, despite the technological difficulties that may fall under the route building. Finally, based on the themes identified during the focus group, factors were identified from Batavia and Hammer's "*Toward the development of consumer-based criteria for the evaluation of assistive devices*". These specific factors were learnability, ease of assembly, operability, and dependability. It was through our thematic findings that the authors were able to connect learnability with travel partner training effectiveness, ease of assembly and operability with portal route building, and dependability with portal user friendliness.

CONCLUSION

The themes that were created based off of the analyzed focus group data included: training effectiveness, route building portal accessibility and user friendliness of the portal. Based off of the study's findings, it is observed that the Adult Learning Theory was easily applied towards the travel partner trainings. The travel partners were appropriately trained based on Adult Learning Theory and then were asked to apply their learnings to creating their own individual route. Once the travel partners were able to do so, they later participated in a focus group, commenting on the structure and efficiency of the trainings. It was observed that the route building portal was user friendly and easy to use, however, it was found to be time consuming and had technical issues from time to time when attempting to enter the portal. Future activities will focus on the portal dependability, ease of set-up, and operability while maintaining the fundamentals of the training.

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