



Creating an Assistive Technology Exposition with Planning Guide & Toolkit for the Seven Hills Foundation

An Interactive Qualifying Project submitted to the faculty of Worcester Polytechnic Institute in
partial fulfillment of the requirements for the Degree of Bachelor of Science

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Abstract

With constant changes in the assistive technology field making it hard to keep up with current advancements, Seven Hills works to inform their staff and surrounding community about these assistive technologies through an annual exposition. Our team worked with staff of Seven Hills to plan and execute the 2018 Seven Hills Foundation Assistive Technology Exposition. This exposition offered a wide range of interactive assistive technology devices from companies and organizations throughout Massachusetts to help link people to useful resources. As a result of this exposition, we also produced a Planning Guide & Toolkit for Seven Hills to use in running future events.

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Executive Summary

In the United States alone, over 30 million people experience difficulty with daily tasks due to a disability (NIH, 2016). In order to assist these people, software programs, equipment, and product systems have been developed to improve accessibility and promote independence. Such "assistive technologies" range from pencil grips to modified cars. The world of assistive technology (AT) is constantly evolving, but the professional staff that work with individuals who need AT are often much too busy to keep up. Additionally, there are no centralized sources of information about available AT (Fischer, 2016). The lack of organized information about AT leads to an increasing problem about AT awareness and education. One of the organizations impacted by this increasing knowledge gap is a Massachusetts-based non-profit organization: The Seven Hills Foundation.

The Seven Hills Foundation seeks to address this knowledge gap by hosting an annual AT exposition, gathering together local companies, businesses, and organizations to talk about and demonstrate their devices and services to the Seven Hills staff and the community of disabled people they serve. However, this exposition was still a very new undertaking for Seven Hills in 2017, and few procedural guidelines were in place. We worked with Seven Hills to organize and carry out the 2018 Assistive Technology Exposition and create a Planning Guide & Toolkit to provide assistance in running future expositions.

Objectives and Methodology

The main objectives of this project aimed to assist the Seven Hills Foundation in the creation of AT expositions, both this year and in the future. The first objective was to organize the details of the exposition. The second objective was to run and evaluate the exposition. The third objective was to provide a guide & toolkit for planning future expositions for Seven Hills to use. The final objective was to recommend other ways to increase AT exposure and education within Seven Hills. These objectives were achieved through constant communication with Seven Hills staff to run the exposition and create a Planning Guide & Toolkit for carrying out future expositions.

Results & Outcomes

The AT Expo Planning Guide & Toolkit contained the majority of the results of the project, as it was a comprehensive guide for staff at Seven Hills to use to host future AT Expo.

Core elements of the AT Expo Planning Guide & Toolkit contain:

- User friendly design
- Interactive Project Scheduler (See Figure 1 below)

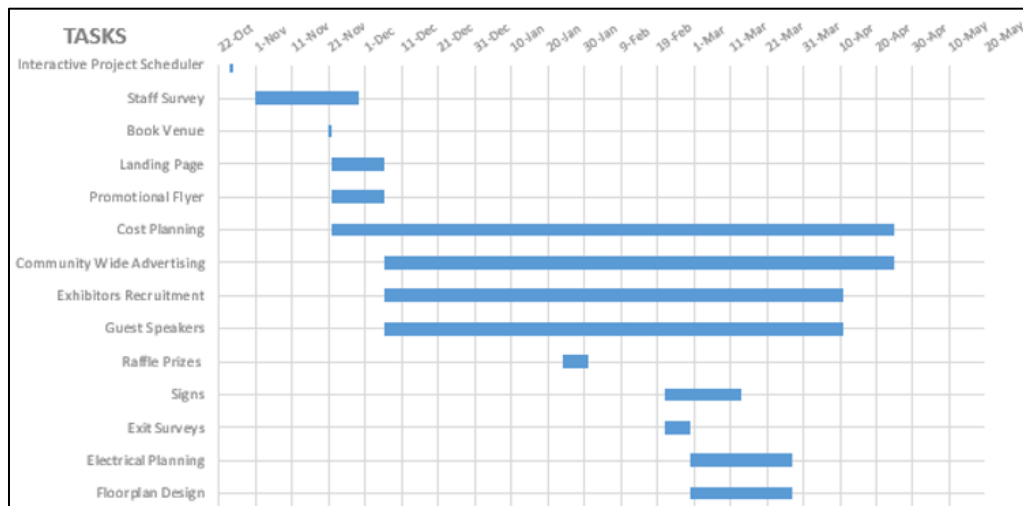


Figure 1: Interactive Project Scheduler Partial Snapshot

- AT Expo Toolkit (See Figure 2 below)
 - Easy to edit documents/files
 - Synchronized with AT Planning Guide

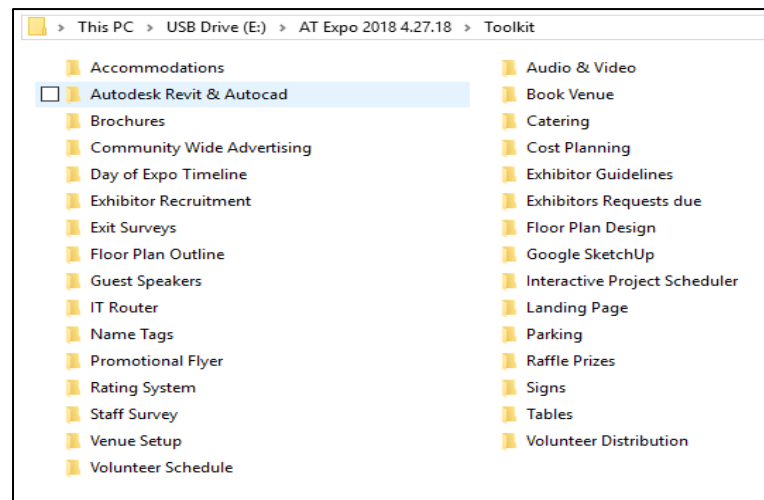


Figure 2: AT Expo Toolkit

- AT Expo task pages with guidance, duration, tools, and key contacts (See Figure 3 below)

1.5 Promotional Flyer

The layout of the advertisement flyer should be quick, to the point, and contain all necessary information about the exposition. Such information is: the date, time, location, exhibitors, and a registration link. Highlights about the event, to draw interest, is also highly recommended. This will make the flyer one of the best advertisement/informational tools and can be sent to all exhibitors as they are contacted. Once this information is gathered, the flyer will be made by the Marketing and Communications Department. The 2018 exposition flyer can be seen in Figure 6 below.

Resources
<p>Contact: Office of Advancement, Nancy Benoit, Nbenoit@sevenhills.org</p> <p>Tools: Promotional Flyer</p> <p>Start 110 days before the Exposition, 10 days to complete</p>

Figure 3: Sample AT Expo Task Page

This planning guide can be used for many years with simple edits made to both the planning guide and the toolkit for continual simplification of hosting a beneficial exposition. The Planning Guide includes a timeline and step-by-step process on how to run an exposition, each step with a section elaborating on the process necessary to accomplish it. Also included is an extensive list of all the people we contacted, including members within the Seven Hills Foundation, exhibitors, colleges, and social media, detailing their contact information and services.

In addition, the exposition and preparation for it produced its own set of results that we analyzed. Survey results received from the staff of the Seven Hills Foundation helped to indicate that the range of assistive technologies the exposition needed to cover was very wide, as shown in Figure 4 below.

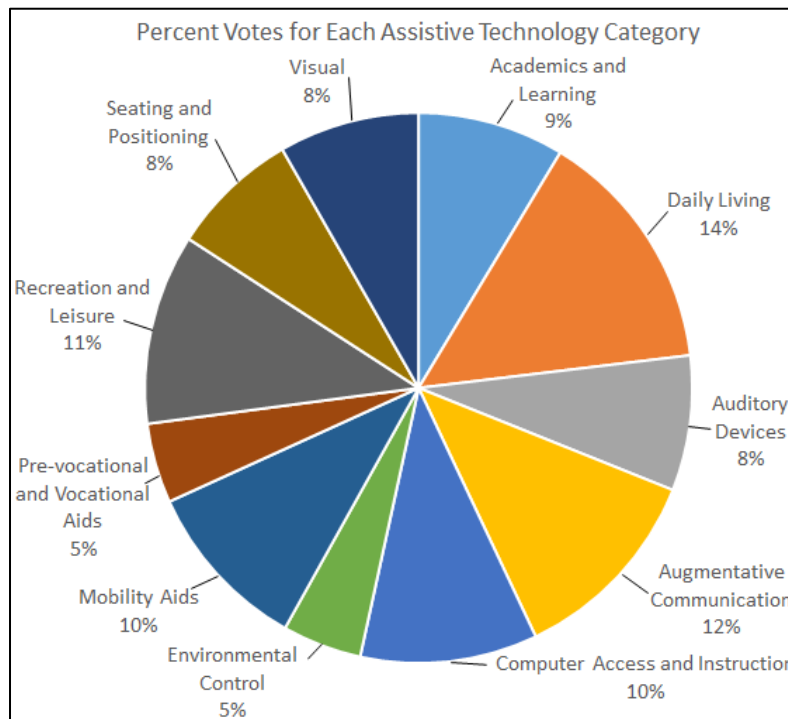


Figure 4: The Percent of Total Votes for Each Category of Assistive Technology

Roughly 200 attendees came to the exposition and 24 exhibitors demonstrated their devices and services. A total of 50 expo attendees took the exit survey, of whom 90% rated the overall exposition either good or excellent. Additionally, 20 exhibitors took the exit survey, of whom 90% responded that the exposition was executed very or extremely well. The remaining 10% of exhibitors responded that the exposition was executed moderately well. When asked, all the attending staff from Seven Hills said that they had learned at least a moderate amount about assistive technology. From these results, we determined that running the exposition according to the Planning Guide was successful in delivering information about assistive technology to its attendees.

Recommendations

At the conclusion of the project, we developed a list of recommendations. These suggestions should help support the needs of Seven Hills staff, promote professional development, and improve the levels of communication among Seven Hills affiliates. These suggestions include:

- Ensure AT Exposition Planning Guide & Toolkit are updated for each Exposition.
- Increase the number of training sessions and workshops about AT beyond what an Expo has to offer.
- Maintain up-to-date Seven Hills staff information on SHF Website.
- Regularly survey staff to track areas of need.
- Maintain open communication among all Seven Hills staff regarding Expo details.

1.0 Introduction

One in five Americans, 53 million people, is disabled, and 33 million Americans have a disability that makes it difficult to carry out daily activities without assistance (NIH, 2016). Software programs, equipment, and product systems are designed to aid, maintain, and improve the lives of individuals with disabilities (Assistive Technology Industry Association [ATIA], 2018). These tools are known as assistive technologies, which range in complexity and size from automated wheelchair lifts for vans to handheld hooks to assist with buttoning shirts (Family Center on Technology and Disability, 2018). The Alternative Media Access Center (AMAC) (2018) at the University of Georgia put assistive technologies into three categories: low-tech, middle-tech, and high-tech. In the fast-growing world of assistive technology, staying up to date with the latest technologies is difficult.

Often, professional organizations working with assistive technologies are short staffed and overworked (Fischer, 2016). There is an overwhelming amount of disorganized information that makes appropriate assistive technology hard to find. Both professionals and the individuals with disabilities run into this challenge. Not being able to get access to useful information about assistive technology makes it hard to determine the appropriate technology for an individual to use. Not only are new assistive technologies difficult to find, but assistive technologies that have been on the market for years are also a challenge to find useful information on. This is the issue that the Seven Hills Foundation, a Massachusetts-based non-profit organization, faces every day.

Businesses and organizations generally use training sessions, workshops, or conferences to educate and assist their staff (University of Kansas, 2017). However, these methods require staff to be able to devote time, often multiple days, away from their work to attend. An alternative method many organizations have used is putting on an exposition. Expositions are large scale events where professionals and the public can gather to share knowledge and experiences, promoting innovation and learning (Bureau International des Expositions [BIE], 2018). Many organizations host expositions to share information about assistive technology. A recent example was the University of Massachusetts' (2016) exposition in October 2016 about learning disabilities. In 2017, a WPI research team worked with the Seven Hills Foundation to host an assistive technology exposition (Buckner et al., 2017). Another nonprofit organization, Easter Seals, had tried to reduce the disorganization of and lack of access to information about

assistive technology by providing an assistive technology showcase room, where anyone can go in, sit down with a professional, and try out different assistive technology devices.

Expositions have provided useful resources and information to those with disabilities, connecting them with exhibitors that produce assistive technologies that address their specific needs. However, the emphasis on advertising goods to clientele at expositions does not benefit the professional staff who support individuals with disabilities. Expositions to date have not focused on interactive displays, which is beneficial education intended to help professionals and individuals improve their knowledge, skill, and effectiveness (Great School Partnership, 2013). Seven Hills Foundation planned to sponsor an exposition to address this problem by giving more room to exhibitors to show interactive displays where technologies can be tried or demonstrated. However, Seven Hills did not have the proper procedures in place to run an exposition.

This project's goal was to help the Seven Hills Foundation hold an assistive technology exposition to inform its staff, the community of individuals with disabilities as a whole, and other interested organizations about assistive technologies and their wide range of uses. The first objective of this project was to organize all the necessary components of the exposition. This included recruiting and coordinating exhibitors and volunteers, designing the floorplan of the exposition, and developing advertising and promotional materials for the exposition. The second objective of this project was to successfully run and evaluate the Assistive Technology Exposition. This objective consisted of carrying out the event itself and analyzing the exit surveys that were received. The third objective of this project was to provide a guide for future expositions that Seven Hills may want to run. This objective involved developing a toolkit of materials to give to Seven Hills. The toolkit contained a detailed schedule of tasks, editable visual model representations of the exposition floorplan, and the list of exhibitors contacted with their attendance status. The final objective of this project was to recommend other methods and strategies to effectively increase assistive technology exposure and knowledge to the staff within the Seven Hills Foundation. Through completing these objectives, we successfully delivered an Assistive Technology Exposition on April 25th, 2018. We saved all documents and files to produce an extensive Toolkit. A Planning Guide was created to simplify and explicitly inform future exposition project teams on how to run an effective and efficient exposition. The Planning Guide & Toolkit was given to Seven Hills for use by future Assistive Technology Exposition project teams.

2.0 Background

Over a billion people around the globe are estimated to live with some form of disability (WHO, 2018). This corresponds to about 15% of the world's population. Between 110 and 190 million people 15 years and older have significant difficulties functioning. The number of individuals with disabilities is increasing due to ageing populations and an increase in chronic health conditions. In the state of Massachusetts alone, there was a 1.5% increase of individuals with disabilities from 2015 to 2016 (Commonwealth of Massachusetts, 2016). While a 1.5% increase may not seem like a significant change, there also needs to be an increase in the number of staff who are able to assist and direct individuals with disabilities to the appropriate assistive technologies (WHO, 2018). In this chapter, we discuss different categories of disabilities and assistive technologies, and detail the societal need for and challenges addressed by assistive technology. Methods used for staff professional development are examined, including the advantages and disadvantages of each method. A definition of expositions is provided in detail, and previous expositions are discussed. Finally, we discuss The Seven Hills Foundation's history and how it serves its clients.

2.1 Definition of Disabling Conditions

To determine what individuals with disabilities need, an understanding of what disabilities are is necessary. When it comes to describing an individual's disabling condition there are generally three main categories: Impairment, Handicap, and Disability (WHO, 2018). These three categories convey totally separate meanings. The World Health Organization defines disability as "a functional limitation with regard to a particular activity" and marks it as an interaction between the capabilities of people and the society they live in (Simeonsson, Lollar, Hollowell, & Adams, 2000, para. 3).

Disabilities are categorized for many reasons, one of which is to establish protocols for the distribution of benefits and services (University of Iowa, 2018, p.4). Categorizing disabilities helps the government identify needs and allocate necessary resources. Without categorizing disabilities by diagnosis, third-party payers would not reimburse for services and the government would not provide services such as those provided by agencies, residential

institutions, or specialized interventions (Smart, 2000). These categories are defined more in depth in Appendix A.

2.1.1 Societal Need for Assistive Technology

Assistive technologies enable people to live healthy, productive, independent, and dignified lives, participating in education, the labor market, and civic life (WHO, 2018). Assistive technologies can reduce the need for formal health and support services, long-term care, and the work of caregivers. Without assistive technologies, people are often socially excluded and isolated and locked into poverty, increasing the negative impact of disabilities on people, their families, and society. The World Health Organization estimates that more than one billion people could benefit from assistive products. With populations aging and the prevalence of chronic diseases such as diabetes and fibromyalgia rising across the world, this number is likely to rise above 2 billion by 2050. Many older people need two or more assistive products as they age. The World Health Organization states that the people who most need assistive technologies are those with disabilities and people with gradually declining health.

2.1.2 Challenges of the Need for Assistive Technology

Many challenges arise when examining the societal need for assistive technology. Assistive technology can be challenging to afford and acquire due to supply and demand (WHO, 2018). A 1992 survey in the United States reported as many as 13.1 million people were using assistive technologies to accommodate physical impairments, and 2.5 million people expressed a need for assistive technologies they did not have (LaPlante, Hendershot, & Moss, 1992). Though this study is 26 years old, it presents an unmet challenge that still continues today. This challenge occurs not only in the United States, but around the world. Today only 1 in 10 people in need around the globe have access to assistive technology due to high costs and a lack of awareness, availability, trained personnel, appropriate policies, and adequate financing (WHO, 2018).

This problem is becoming an epidemic on a global level. The lack of affordability of assistive technology in low--income countries is a major reason people in need do not possess assistive technology products (WHO, 2018). Below are some facts provided by the World Health Organization regarding the significance of the lack of availability of assistive technologies:

- 200 million people with low vision do not have access to glasses or other low-vision devices.
- 70 million people need a wheelchair, but only 5% to 15% of those in need have access to one.
- 360 million people globally have moderate to profound hearing loss. Hearing aid production currently meets less than 10% of the global need.
- Huge workforce shortages in assistive technology exist: over 75% of low-income countries have no prosthetics and orthotics training programs. Countries with the highest prevalence of disability-related health conditions tend to be those with the lowest supply of health workers skilled in the provision of assistive technology (as low as 2 professionals per 10,000 population).

Along with the lack of availability of assistive technologies, few countries actually have a national assistive technology policy (WHO, 2018). In many countries, access to assistive technology in the public sector is poor or non-existent. Even in high-income countries, assistive products are often rationed or not included within health and welfare schemes, leading to high out-of-pocket payments by users and their families. This leads to situations such as a common policy in a number of European countries, where the state provides older people with only 1 hearing aid despite the fact that most people with age related hearing loss require 2 hearing aids to function properly.

The assistive products industry is currently limited and specialized, primarily serving high-income markets (WHO, 2018). There is a lack of state funding, nationwide service delivery systems, user-centered research and development, procurement systems, quality and safety standards, and context-appropriate product design. In high-income countries, services are often stand-alone. People are forced to attend multiple appointments at different locations, which are costly, time consuming, and add to the burden on users as well as professionals, and on health and welfare budgets.

2.2 Assistive Technology

Assistive technology is a vast topic ever changing in information and content. A definition for assistive technology is required to further understand this topic. Assistive

technology devices can come in many different shapes and sizes and can be put into different categories depending on their complexity. Additionally, the services provided alongside assistive technology are essential to ensuring each step in attaining assistive technology is taken appropriately and with the necessary amount of consideration. This consideration is based on medical and human ethics and respect for the abilities and personhood of each individual. More challenges can about assistive technology can be seen in Appendix B.

2.2.1 Assistive Technology Definition

Assistive technology can be defined as “any item, piece of equipment, software program, or product system” whose purpose is “to increase, maintain, or improve” a disabled person’s abilities (ATIA, 2018, p.1). Assistive technology helps people learn, compete in the work environment, achieve independence, and improve the quality of their lives. (The Rehabilitation Engineering Research Center on Communication Enhancement [AAC-RERC], 2018). Assistive technology also has socioeconomic benefits: reducing direct health and welfare costs such as hospital admissions or state benefits, enabling a more productive labor force, and stimulating economic growth (WHO, 2018). Assistive technology can be provided in two ways: as a device or as a service.

2.2.2 Assistive Technology Devices

According to the Individuals with Disabilities Education Act (IDEA), assistive technology devices are defined as “any item, piece of equipment, or product system... that is used to increase, maintain or improve the functional capabilities of persons with disabilities” (Georgia Project for Assistive Technology, 2004, p.1). Assistive technology was first defined federally in Public Law 101-466 of the Individuals with Disabilities Education Act of 1990. An exemption to the definition of assistive technology devices was added to clarify that a school system is not responsible to provide surgically implanted technology, such as cochlear implants. This being said, almost any tool can be considered an assistive technology device except those surgically implanted and used strictly as medical devices. The Individuals with Disabilities Education Act uses the term “device” to provide a broad definition, to allow the flexibility to make decisions about appropriate assistive technology for a wide range of solutions.

Assistive technology devices can be divided into three main categories: low-tech, middle-tech, and high-tech (Georgia Tech: Tools for Life, 2018). Low-tech assistive technology devices normally do not require much training to use, are inexpensive, and do not have any complex mechanical features. These devices can range from a pencil grip to a special type of cane or walker. High-tech assistive technology devices, on the other hand, refer to the most complex devices and equipment. These normally have automated or electronic components, require training to be able to use them, and are the most expensive out of the three categories. High-tech devices can range from powered wheelchairs to computers with specialized software for voice recognition. Middle-tech assistive technology devices are defined in the continuum between low and high-tech, requiring some training and possessing some complex features, and generally costing more than low-tech devices. Middle-tech devices can be anything from talking spell checkers to an alternate mouse or keyboard for a computer. All three assistive technology categories present a wide range of configurations, allowing for individuals with disabilities and professionals to select the device that best fits their needs.

Beyond being categorized by technical complexity, devices can also be organized based on the individual's actual disability and symptoms. For example, if an individual has a speech or language problem, the assistive technology would fall under the category of Augmentative Communication (Georgia Project for Assistive Technology, 2004, p.1). These categories are defined more in depth in Appendix C.

2.2.3 Available Assistive Technology on the Market

The market for assistive technologies is vast but unorganized. Technologies exist for an incredible range of activities, from gift wrapping scissors to speech aids. However, no centralized location for assistive technology information exists (Raskind, 1998, p.29). This deficiency makes reaching an assistive technology's intended audience difficult. The various online sources organize their sites differently, with type of disability, method of assistance, and age of users all as filters. MassMATCH (2018) organizes their technologies alphabetically. Divisions of assistive technology by activity can include adapted toys, disposable items, personal care, vision loss, and wheelchairs (ATRC, 2018). The most consistent organization of assistive technologies is by low, middle, and high-tech levels.

Assistive technologies classified as low-tech can be seen in everyday life. Eye-glasses are easy to find and adjust without expensive procedures to fit the needs of clients. Prescription glasses cost more and need a doctor's appointment, but reading glasses can be bought easily at reasonable prices (Harvard Medical School, 2015). Low-tech items can assist with daily life in seemingly small ways that make a major difference for the user. Special types of pillows or cushions can give people with chronic pain comfort. However, not all low-tech devices are for physical problems. Organizational tools were discussed during a meeting with Worcester Polytechnic Institute's Office of Disability Services. These can be inexpensive, and are often free, but provide the means to keep a person on track and on schedule (J. Szivos, personal communication, February 13, 2018).

The assistive technologies classified as middle-tech serve as a range between low and high-tech. Devices that would normally be expensive are made with different qualities where they can be placed at a lower price range. Often this means that mechanics are simplified or materials are less sturdy (AMAC, 2018). Modifications in current technology allowing for ease of use are also a middle-tech assistive technology. These modifications often use simple means like adjusting settings in an iPhone or using an iPad in class. This allows more middle or lower-income members to have access to more specialized products such as wheelchairs or speech aids. Middle-tech items are often overshadowed by cutting edge technologies and high-tech devices. However, middle-tech assistive technologies provide services that a buyer may be interested in at a lower price. These assistive technologies may not make headlines in magazine articles but can be available in stores or may be recommended by a clinician to patients in need.

High-tech assistive technologies excel at improving quality of life but are expensive (AMAC, 2018). Companies will often put their most advanced wheelchair or learning pad on display. However, this type of assistive technology is only suitable for certain types of users. High-tech systems can be a person's entire way of communication and transportation. Few people can afford these services at the market price. It is important to see these items advertised regardless, because they can attract buyers. Organizations sometimes loan or rent out assistive technology to improve access to the disabled community. This allows more individuals with disabilities to live, work, study, play, and participate independently in all aspects of their communities (MassMATCH, 2018).

2.2.4 Assistive Technology Services

Assistive technology services are defined as “any service that directly assists a child [or adult] with a disability in the selection, acquisition, and use of an assistive technology device” by the Individuals with Disabilities Education Act (Georgia Project for Assistive Technology, 2004, p.1). These services help individuals with disabilities find and use assistive technology. Assistive technology services also include functional evaluations, training on or demonstration of devices, and purchasing or leasing devices (AAC-RERC, 2018). Trained health personnel are essential for the proper prescription, fitting, user training, and follow-up of assistive products. Without these key steps, assistive products may be of little benefit and often are abandoned, and they may even cause physical harm. A common example of harm resulting from assistive technology is the case of providing wheelchairs without pressure relief cushions for people with a spinal injury (WHO, 2018).

2.2.5 Ethics and Assistive Technology

Proper ethical procedures must be followed at all times to ensure that the individual receiving assistive technology benefits from its uses and is not harmed in any shape or form. The Rehabilitation Engineering and Assistive Technology Society of America (RESNA) (2016) promotes research, development, education, advocacy and provision of technology, and its members are the people engaged in these activities. As a means of promoting advocacy and proper, ethical provision of assistive technology, RESNA created a certification process. This process helps guarantee that individuals with disabilities who work with a RESNA certified Assistive Technology Practitioner are receiving service from an expert in the field. Obtaining this certification entails not only passing a comprehensive exam, but also abiding by RESNA's Code of Ethics and Standards of Practice. The RESNA Code of Ethics is a list of eight objectives that RESNA certified Assistive Technology Practitioners have agreed to abide by when providing services. The objective of this code is to assure the person who is receiving the services is paired with a competent assistive technology provider. The RESNA Code of Ethics is listed in Table 1.

Table 1: RESNA Code of Ethics (source: RESNA, 2016)

1. Hold paramount the welfare of persons served professionally.
2. Practice only in their area(s) of competence and maintain high standards.
3. Maintain the confidentiality of privileged information.
4. Engage in no conduct that constitutes a conflict of interest or that adversely reflects on the association and, more broadly, on professional practice.
5. Seek deserved and reasonable remuneration for services.
6. Inform and educate the public on rehabilitation/assistive technology and its applications.
7. Issue public statements in an objective and truthful manner.
8. Comply with the laws and policies that guide professional practice.

The RESNA (2016) Standards of Practice, found in Appendix D, work with the RESNA Code of Ethics to assure proper and ethical provision of assistive technology services. The Standards of Practice set forth the fundamental concepts and rules considered essential to promote the highest ethical standards among individuals who evaluate, assess the need for, recommend, or provide assistive technology.

2.3 Professional Development

Professional development of staff creates a foundation for discovering appropriate technologies for individuals and improving the quality of service provided. This will only be possible to attain if the training or education meets the needs of the staff. There are many techniques to provide professional development, and often a combination of techniques is used to provide the most professional development. The most common techniques all require employees to be physically present, though there are some online offerings for professional development. Beyond the techniques used, an important part to professional development is the incentives used to encourage engaging in professional development events.

2.3.1 Techniques for Professional Development

Professional development can be obtained through a multitude of methods. The most common methods are training sessions, workshops, and conferences (University of Kansas, 2017). Of these, each has pros and cons, and these methods are applied in different ways. Training sessions are most commonly used when organizations see a need for information or skills that are not being met. Training sessions often are individualized to the organization running them, take advantage of professionals in the organization as teachers, and can last anywhere from a few hours to a few days. The University of Kansas notes that training sessions for large numbers of people generally consist of a largely non-interactive lecture method. Due to a large lecture component, training sessions are a relatively easy way to impart necessary information to a large number of members of an organization. Training sessions are, therefore, most useful to provide professional development to large numbers of people who do not require hands-on experience in the material. Workshops, on the other hand, address the same needs with a much more hands-on approach.

The University of Kansas (2017) defines workshops as “single, short... educational program[s] designed to teach or introduce to participants practical skills, techniques, or ideas” (Section 4). This means that workshops are most useful in introducing new methods or concepts to organization members or in motivating organization members to consider issues or techniques from a new perspective. Workshops do this by addressing a small group, usually only 8-12 people, and providing interactive programs that encourage discussion and consideration of current practices (Section 4). However, this means that professional development cannot be provided to a large number of employees at one time using a workshop.

Conferences can serve as a mix of training sessions and workshops, including both within a larger framework (University of Kansas, 2017, Section 5). Due to this, they run for a similar duration as training sessions, often lasting for days. However, conferences tend to focus more on discussion and networking, much like a workshop. Conferences also often have vendor rooms with exhibitors, adding a feature similar to an exposition. The vendor rooms allow for networking with professionals, as well as any non-professional attendees.

Professional development benefits not only professionals, but also the public. For example, in the area of assistive technology, conversations about identification of particular impairments or methodologies behind approaching disabilities could include not only

professional staff, but also the individuals with the disabilities and their families (RESNA, 2016). Service delivery itself can be discussed, as well as going over basic fundamentals on how to incorporate the assistive technologies in the field. In addition, computer software can be used for professional development, such as Venkat Rao's Assistive Technology Blog (2018) on YouTube or Seven Hill Foundation's (2017) online courses.

2.3.2 Incentives

Employers provide incentives to encourage professionals to continuously improve and develop. These incentives are rewards that work on either an extrinsic or intrinsic level (Stroschein, 2010). This means that the rewards used as incentivization are tangible objects of value, e.g. plaques or bonuses, or internal and intangible rewards, such as credibility or respect. These incentives must be implemented in a clear and meaningful way, otherwise the incentivization will fail. Michael Brostek (2000), the Associate Director of Federal Management and Workforce Issues, created a few guidelines for a successful incentivization policy. His guidelines state that there must be support from organization and business leaders for the incentives, the criteria for earning the incentives must be clearly defined and obviously connected to the goals of the business, the incentives must be publicized as much as possible, and the program must be regularly updated and maintained. Massachusetts has many incentive program models, but they are all very similar. All of the models promote mandatory continuing professional development for professionals to retain licenses to practice. Two of the most popular models are Continuing Education (CE) and Professional Development Points (PDP).

The Continuing Education (CE) model is used mainly for health professions and requires participation in a variety of activities to maintain a current understanding of the health field (Commonwealth of Massachusetts, 2018). Continuing Education Units (CEUs) are given out by accredited organizations, such as universities or the Centers for Disease Control and Prevention (CDC). These programs and organizations are accredited by self-regulating associations such as the American Association of Nurse Practitioners (AANP) (2018). Professionals can earn CEUs by going to lectures, workshops, and academic courses. Each CEU represents roughly 10 hours of attendance to an accredited event, though events can be bundled together if they have related topics (Commonwealth of Massachusetts, 2018). Some of these topics include self-defense training, training for transportation of individuals, and the history of disabilities in Massachusetts

and at the Seven Hills Foundation. By going to these learning opportunities, health professionals keep their knowledge base up to date and improve their capabilities in the field.

The Professional Development Point (PDP) accreditation model works much like the CE model, but it is for fields other than health, mainly focused on teaching various subjects (Massachusetts Department of Elementary & Secondary Education, 2016). The Massachusetts Department of Elementary & Secondary Education accredits programs and organizations for PDPs instead of self-regulating associations like CE. However, the types of programs and organizations accredited are very similar: workshops and seminars or university courses. Professionals can earn PDPs through an additional method though. Some forms of ongoing job participation, such as mentoring and coaching, can also qualify for PDP credits.

2.4 What is an Exposition?

Expositions are large interactive events where companies and organizations gather to network, innovate, and sell products and services. These events benefit a great number of people and organizations through this connection and trading of ideas and commodities (Bureau International des Expositions, 2018). At expositions, visitors travel around to booths in the exhibition hall to talk with many different exhibitors and often gain hands-on interaction with their products. This is an ideal way to shop because a product can be tried out before purchase to make sure it performs as necessary. For this section, we define what is, and who the different categories of people are at an exposition: the exhibitors, the audience, and the guest speakers.

2.4.1 Exposition Definition

The Bureau International des Expositions (2018) defines an exposition as an "event that aims at educating the public... [and offers a] multifaceted event where extraordinary exhibitions... take place," and notes that expositions are an ideal opportunity to share knowledge and experience among professionals and the public (p.1). Expositions are generally for the public to attend and are geared towards increasing attendees' knowledge. Hosting an exposition has multiple benefits. Exhibitors and speakers can be invited to drive the focus of the exposition to meet an organization's needs. Another benefit is the networking formed while developing an

exposition. The networking occurs on three fronts: between the host and the exhibitors, between the host and the public, and between the exhibitors and the public.

2.4.2 Exhibitors for an Exposition

Exhibitors who are invited to be part of the exposition have to fulfill certain standards (Buckner et al., 2017). Exhibitors are very important to an exposition because they attract more people to attend as the list of exhibitors grows. These exhibitors contribute to the exposition by offering technologies to display, giving demonstrations and possibly setting up future business contacts (Woodward, 2017). Yaniv Masjedi (2013), Nextiva's Chief Marketing Officer, notes that while exhibitors primarily attend events to sell products, exhibitors often will attend to advertise their company and their products. Part of this advertisement would be demonstrating the use and benefits of their displayed services and devices.

2.4.3 Audience

The audience of an exposition is arguably the most important population to design for. This is because the exposition is built to entice a large audience to attend. The exposition must be set up in such a way that it guides the attendees from activity to activity, while being easily traversable and accessible (Linden & Creighton, 2008, Chap. 4). This allows for the attendees to flow around the exposition smoothly and find the booths or activities that interest them the most. The floorplan can be spread out, such as the one at Council for Exceptional Children (CEC)(2018) in Tampa, Florida, or more compact, like New York City's Ability Exposition (2018). These floorplans can be seen in Appendix E. The most common element in floorplans for events with exhibitors such as expositions has the exhibitor tables in a grid, as grids are easy to set up and navigate. A grid format can also organize the exhibitor tables so that the audience can easily find exhibitors that interest them.

2.4.4 Guest Speakers

Keynote speakers provide inspiration and motivation to their audience. Keynote speakers often are used to connect audience members to each other and engage them in their work (Farman, 2017). Additionally, keynote speakers restate and reframe organizations' goals and missions, allowing the audience to hear their objectives in a new light. This can spawn new ideas

and attitudes, furthering development of the organization and its mission (Kleiman, 2015). However, speakers must be chosen carefully to ensure the organization benefits from their presence.

The five most important requirements for a guest speaker were enumerated by Dave Lutz (2016), a Certified Meeting Professional. The first, and arguably most important, requirement is that the speaker be relevant to the event. The second requirement is that the speaker's knowledge must be recent and up to date. This point's importance stems from the fact that fields only advance when current knowledge is shared; passing around outdated knowledge at best provides no development and at worst stalls the advancement of the field. The third requirement is that the presentation given by the guest speaker must be customized for the event and organization. This is due to each event and organization having unique needs. The speakers must adapt to the audience they are speaking to to most effectively deliver their knowledge. The fourth and fifth requirements deal with the speaker's presentation skills. The speakers must be polished and engaging in their presentation. These skills are important for speakers to be taken seriously as knowledgeable professionals worth the listening to. Without these skills, the audience will drift and fail to follow a speaker, rendering the purpose of the keynote speaker null and void.

2.5 Running an Exposition

There is a combination of things that go into holding an exposition. Two of the most important tasks to do while running an exposition are keeping the event well organized and providing good networking opportunities for all attendees (Linden and Creighton, 2008). When it comes to keeping the exposition organized, apps can be useful to attendees since they provide all the information for the event. Networking encompasses everyone from professionals and attendees to the exhibitors sharing information, thoughts, and ideas to improve people's quality of life.

2.5.1 Organizing an Exposition

There are numerous ways to organize and keep track of an exposition. Apps such as Expo Pass help organizers run an exposition smoothly (Mobile Event App for Associations and Conferences, 2017). These apps keep track of all the events happening on the day of the exposition. This is useful, as an exposition has many different features, including speakers,

exhibitors, and often breakout sessions. In each of these sections in the app, there are descriptions of the exhibitors attending, a bio of the speakers, or what the different sessions are about. The app can track everyone who has signed in to the exposition, as well as attendees of each event. Additionally, the app can give a list of possible events the user could go to - helpful for clientele and organizers. However, an app is not always an effective way for everyone to navigate the exposition. To address this, printed out flyers can be used to let people know what exhibitors are attending and what kinds of sessions are being held, as well as floor plans for the different events.

2.5.2 Networking at the Exposition

Expositions bring together a multitude of exhibitors and people, both professionals and from the community, and promote networking and information sharing (Linden & Creighton, 2008). The connections fostered at expositions benefit both exhibitors and attendees by allowing for innovation. This innovation comes from connecting product and service providers to consumers. This allows consumers to directly interact with providers and discuss issues they have with the provided commodities, and for providers to connect with each other and create business networks for improved products and services.

2.6 Seven Hills Foundation

The Seven Hills Foundation (Seven Hills) (2017) is a non-profit organization located throughout Massachusetts, with three additional locations in Rhode Island. The Seven Hills Foundation includes people from many different backgrounds and countries and keeps diversity in mind as they reach out to communities. Their staff hopes to help every person get the resources and assistive technology that fits his or her needs. Its mission is to advocate for and advance the ability of individuals with disabilities to achieve a life as independent and healthy as possible. Seven Hills achieves this through its three areas of work: Child and Family Services, Clinical and Behavioral Health Services, and Community Supports Services. These three branches work together to support the entire community around each of its locations, providing services that assist more people than just their individual clients. Seven Hills is accredited by numerous state and government departments, such as the National Commission for the

Accreditation of Special Education Services and the Massachusetts Department of Mental Health. Seven Hills employs professionals in numerous wellness fields and focuses on using a method of behavior re-education called Positive Behavior Supports to assist their clients and the clients' families.

Positive Behavior Supports changes and reduces problem behavior by focusing on the factors causing the behavior rather than simply attempting to reduce the behavior itself (Carr et al., 2002). The reasoning behind this is that behaviors form by attempting to fulfill unmet needs, and the behaviors will continue as long as the needs are unmet. Because focusing on reducing the behavior itself does not meet the needs motivating the behavior, very little positive progress is accomplished. Positive Behavior Supports works on forming functional and appropriate behavioral patterns that meet the need of the original problem behavior. An example of Positive Behavior Supports is giving an iPad with speech software to a speech-impaired person for them to communicate with others when something is wrong instead of screaming for attention or help. Positive Behavior Supports is the essential method that underlies the successful transition to using assistive technologies to achieve independence and healthy living.

2.7 Assistive Technologies at Seven Hills

Seven Hills Foundation uses a wide variety of assistive technologies. These technologies range from apps on iPads, to an eye gaze system and speech recognition on the computers in the Seven Hills computer lab, to mobility devices like wheelchairs and canes or walkers (J. Des Roches & S. Kessler, personal communication, February 8, 2018). Seven Hills broadens the Individuals with Disabilities Education Act's definition of assistive technology, redefining it as any use "of advances in science to support people and society, to reduce barriers, and to make the everyday world more accessibility [sic]" (Seven Hills Foundation, 2017, p.1). Seven Hills includes any assistive, adaptive, or rehabilitative device in this definition, including devices not originally designed for the disabled community. These myriad devices are used to customize service to each of Seven Hill's clients to provide maximum independence.

The assistive technology program at Seven Hills is directed by Steven Kessler and Jean Des Roches. Ms. Des Roches also maintains a blog on the Seven Hills site with anecdotes and tips about improvements in assistive technologies or strategies to use when learning how to live

with disabilities (Seven Hills Foundation, 2017). On her blog, Ms. Des Roches recommends websites and apps useful for making life easier. In addition to Ms. Des Roches' blog, the Seven Hills website has a plethora of online resources that redirect people to organizations such as the American Foundation for the Blind and the Alzheimer's Foundation of America. Seven Hills works closely with many such organizations, as well as taking advantage of local Science, Technology, Engineering, and Math (STEM) students to advance the foundation's assistive capabilities. Seven Hills has project programs with Mass Academy of Math and Science, the University of Massachusetts Lowell, and the Worcester Community Project Center at Worcester Polytechnic Institute. These projects bring students working on assistive technology projects in contact with Seven Hills' staff and clients.

In 2017 a previous IQP surveyed Seven Hills staff to respond with the categories of assistive technology apps they were missing on their devices or wanted to have more options in. The survey was sent out to more than 70 staff members, and it received 26 responses. The results of the survey can be seen in Table 2 below.

Table 2: Assistive Technology App Survey Results

App Type Needed	Number of Responses	Percent of Individual Responses	Percent of Total Responses
Reading	18	69.2	11.3
Sign Language	15	57.7	9.4
Communication/AAC	13	50.0	8.1
Scheduling	13	50.0	8.1
Music/Audio	12	46.2	7.5
Medical	12	46.2	7.5
Memory Aids	11	42.3	6.9
Games	11	42.3	6.9
Entertainment	10	38.5	6.3
Task Analysis	10	38.5	6.3
Lifestyle	9	34.6	5.6
Recreation	9	34.6	5.6
Functional Math	5	19.2	3.1
Written Expression	4	15.4	2.5
Early Education	4	15.4	2.5
Mechanics of Writing	3	11.5	1.9
Vision	1	3.8	0.6

This survey was used to determine if a survey could successfully distinguish categories of assistive technology Seven Hills had need of, as well as helping to distinguish which categories of assistive technologies those are. The survey successfully showed that there was a marked difference in need across the described categories of assistive technology. The top four categories, with more than 50% of the responders requesting more apps for, were Reading, Sign Language, Scheduling, and Music/Audio. However, nearly every category showed that over a third of respondents indicated need. This meant that another assessment of need was necessary to determine if the need in Seven Hills was broadly spread across the categories of assistive technology or focused in just a few categories.

2.8 Past Assistive Technology Expositions

In 2017, a research team from WPI worked with the Seven Hills Foundation to produce an exposition that the staff from Seven Hills and the public attended (Buckner et al., 2017). It had two sessions. The first session was from 10am to 2pm, and the second one was from 3pm to 7pm. The team also created a database using Google Sheets. This database was used for organizational purposes: keeping track of exhibitors, purchases made, a speaker list, and an overall schedule for the exposition. The team's goal was to produce an exposition that introduced the disabled community to recent assistive technologies.

The 2017 team collected exit surveys from the attendees, volunteers, and exhibitors (Buckner et al., 2017). One main point that the exhibitors stated was that the exposition ran too long. The attendees commented that the exhibitors did not have many demo devices, which made exhibits less useful to them. Hands-on interaction with devices would have made the exposition more informative for the attendees, as decisions about use and fit are easier to make with physical demonstrations. Many attendees were interested in buying the assistive technologies that the exhibitors demonstrated, but exhibitors weren't prepared to inform the clients where to buy their products or if insurance would cover them. The team recommended that exhibitors have a handout talking about places to buy their products and insurance policies regarding their purchase. Community members also had valuable input for future events. They wanted a person with a disability using the exhibitors' technology at each booth. A representative of REquipment

thought that a drop off/donation bin for assistive devices would be useful. This would allow people to take what they needed free of charge.

2.9 Summary

Many people are in need of assistive technology, as there is a growing disabled population in Massachusetts. This has caused an increasing demand for assistive technology and the ability to match each technology to the people who could benefit from it effectively. However, a shortage of professional staff means long hours and an inability to keep up with the ever-changing world of assistive technology. These two factors are compounded by the lack of organized research and resources for assistive technology updates. Organizations such as the Seven Hills Foundation feel this compounded problem is very hard to solve. In the next chapter, we explain how we went about helping to solve this challenge.

3.0 Methodology

This project's goal was to help the Seven Hills Foundation hold their second assistive technology exposition to educate the Seven Hills staff, individuals with disabilities, and other interested parties about assistive technologies and their wide range of uses and types. In addition, the project aimed to create a comprehensive means for Seven Hills to efficiently and systematically run assistive technology expositions in the future. These two goals worked parallel to each other, where the process of designing this year's exposition informed the creating of the planning guide for future years. This project was carried out through achieving the following objectives:

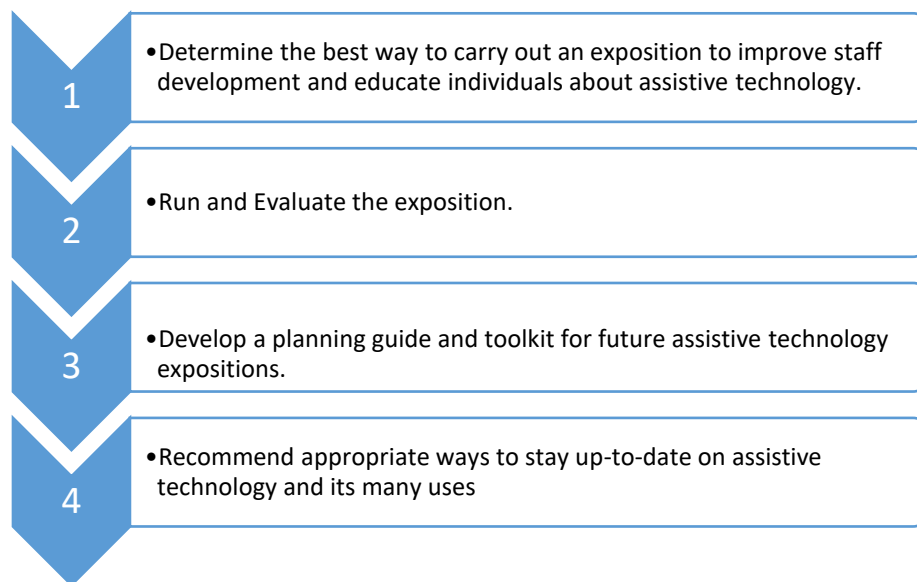


Figure 5: Project Objectives

Over the course of 6 weeks, the team worked closely with Seven Hills staff to successfully organize and run an Assistive Technology Exposition and created a deliverable Planning Guide & Toolkit to assist Seven Hills in executing future Assistive Technology Expositions. Seven Hills staff members worked closely with us to ensure that the exposition was set up properly, and we were in continuous contact with the President's Cabinet and Marketing & Communications team, exchanging ideas and ensuring that the exposition was growing to match Seven Hills' expectations and needs. This allowed us to create an event that matched Seven Hills' standards and mission. In this chapter we described the methods we used to achieve our goals.

3.1 Organizing the Exposition

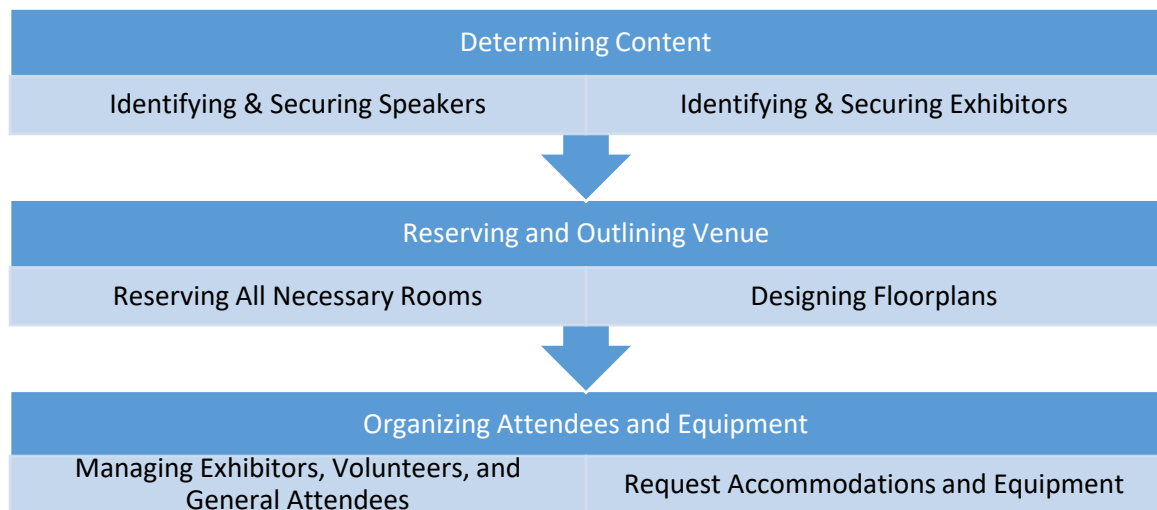


Figure 6: Steps in Organizing the Exposition

The project sponsors had reserved the WDH Program Area in the Seven Hills Corporate Office Building at 81 Hope Avenue, Worcester for carrying out the exposition. This reservation allowed the Assistive Technology Exposition to be held from 10:00 AM to 3:00 PM on April 25th, 2018. The target objective of the exposition was defined by the sponsors as providing information for individuals with disabilities and the Seven Hills Foundation staff. To determine the content to provide at the exposition, we gathered resources on the following topics:

1. Examined the results of a survey a previous IQP team distributed to staff (Flannery, Moran, & Schwamb, 2018)
2. Conducted our own survey of the staff
3. Conducted informal interviews of the staff
4. Discussed priorities of the exposition with our project liaisons, who run the Seven Hills Assistive Technology Department.

The team determined the content of the exposition with respect to exhibitors and speakers, ensured that all the space necessary for the exposition was reserved and designed the floorplan of the exposition, and organized the necessary exhibitors, volunteers, and equipment. A flyer we designed for this event is in Appendix F.

To make sure that the exposition stayed on track with its subject and timeline, we were constantly in contact with the sponsors and other important members of Seven Hills. We worked closely with the Advancement Department in the Seven Hills Foundation, who reached out to Seven Hills staff through Constant Contact. This department also aided us in determining the number of volunteers for the event and their distribution and advertising for the exposition. In this section, findings were compiled from data collected before the 2018 exposition. This was analyzed during the planning process to determine which categories of assistive technology were needed at the exposition, as well as helping us narrow down what type of speaker we would like present.

3.2 Running and Evaluating the Exposition

This objective consisted of the activities done the day of the exposition and the evaluations of the exposition. To make sure that this exposition ran smoothly, a timeline of tasks for the exposition was developed. The task list can be seen in Appendix G. The preparation of the tasks was done by Seven Hills employees and the project team, but the tasks themselves were allocated to volunteers in order to leave the project team and sponsors free to oversee the exposition and reallocate resources as necessary. The exposition was evaluated during and after the event to know how well the exposition achieved its goals.

Gathering feedback was essential to developing an effective and efficient structure for future expositions at Seven Hills. One technique to gather feedback was an exit survey on laptops. An example questionnaire can be found in planning guide. After the surveys were filled out and completed, the surveys were analyzed. A list of the common suggestions, likes, and dislikes and a visual summary of quantitative results were created. Additionally, we suggested that a similar survey be sent a month or two after the exposition to Seven Hills staff to assess the longer-term benefits or shortcomings of the exposition. The other technique used to gather feedback on the exposition was a voluntary exhibitor rating system. This was incentivized though offering an additional raffle ticket that could be put towards raffle prizes for submitting the form. This allowed the attendees to rate the quality of the exhibitors. From this, the average satisfaction of the attendees with the exhibitors was determined.

3.3 Creating Planning Guide & Toolkit for Future Exposition

The Planning Guide & Toolkit was created to assist Seven Hills staff in successfully creating and running an assistive technology exposition. The methods and tools in this guide were the ones developed for the 2018 Exposition and also based on some of the methods and tools used for the 2017 Exposition. The Planning Guide & Toolkit was then assembled for future use. The Planning Guide & Toolkit included the following deliverables:

Planning Guide for Future Expositions: This guide is a step-by-step walkthrough of the tasks necessary for creating an exposition. It organizes the methods that were used in this exposition with suggested improvements. This was created through consideration of the steps needed for the 2018 Exposition, and the time necessary to complete each step.

Hype Video: The Hype Video was a video created as promotional material in order to spread awareness of the exposition. The video was then shared through social media and sent out over Constant Contact. The video was created using the time-lapse video from the 2017 Exposition, voiceover from two of Seven Hills' staff members, and representations of a few of the major exhibitors at the exposition. The video was created using the Adobe Premiere Elements 12 software.

Exhibitor Contact Spreadsheet: This spreadsheet is a compilation of all the companies and organizations contacted in preparation for the exposition. These were grouped by attendance status for the 2018 Exposition and have all relevant information in other columns. This list was provided for future use in order to track attendance history of exhibitors and supply contact information for the exhibitors. A copy of this spreadsheet with only the alphabetized exhibitors with contact information was also provided.

Floorplan Models: These were detailed schematics of the WDH Program Area, both empty and set up for the 2018 Exposition. The models included both two-dimensional and three-dimensional sketches as a visualization tool to help organize table spacing for the event. The models were provided in two versions: Autodesk Revit 2017 and Google SketchUp. This was done because Revit is a more powerful software, but SketchUp is easier to use and has a free version.

Signs: Directional visual representations were printed out and displayed during the 2018 exposition to regulate traffic flow at 81 Hope Avenue, Worcester, MA. The templates approved by the Multimedia Communications Associate representative were included for future reference.

Exhibitor Guidelines: A set of guidelines was created for exhibitors. This was done to inform exhibitors of the expectations of them at the exposition. These guidelines were based on larger expositions' exhibitor guidelines and simplified to suit the 2018 Exposition.

Exposition Brochure: This was an informational guide given out to attendees at the exposition. The brochure included the exhibitor list and floorplan of the WDH Program Area, the definition of assistive technology, and the Seven Hills Foundation's core mission. It was also used to promote upcoming Seven Hills events. The exhibitor list and floorplan allowed attendees to have easy navigation of the exposition. The map was generated by the Google SketchUp and Revit models.

Exposition Rating System: This handout listed the exhibitors and asked attendees to rate their experiences with the exhibitors. This was used as a technique to gauge the attendees' interaction with exhibitors and the quality of the exhibitors' tables.

Exposition Timeline: The scheduled activities for the day of the exposition were outlined as a visual model of the exposition. This was used to ensure that no exposition activity was forgotten. This was based on the 2017 Exposition and adjusted in accordance to this year's schedule. The exposition timeline can be found in the planning guide and the toolkit.

Volunteer Distribution Spreadsheet: This spreadsheet indicates each job at the exposition and allowed for easy organization of volunteers to ensure that each job is covered. The jobs were generated by discussion with the Advancement Department at Seven Hills. This volunteer distribution spreadsheet is not attached in the report to protect individual's confidentiality.

3.4 Recommending Other Strategies for Assistive Technology Learning

Research was carried out to identify the wide range of professional development strategies Seven Hills can use to provide professional development for their staff. This was done by having informal conversations with the Seven Hills' development team about strategies they already use to determine how successful they have been. We researched online for educational

websites and pedagogical methods that could provide Seven Hills' staff with opportunities to learn about assistive technology. Additionally, we examined social media like Pinterest, Facebook, and Instagram for assistive technology ideas or suggestions. With this information, a list of suggested places was created to keep the staff up to date or for places to look if they are in need of further information on assistive devices.

3.5 Summary

In our 6 weeks at the Seven Hills Foundation, we planned and carried out the exposition and organized it with the help of the Seven Hills staff. Additionally, we created a Planning Guide & Toolkit to aid Seven Hills in putting on future assistive technology expositions. This Planning Guide & Toolkit was based on the tasks that were completed for the 2018 exposition. We also researched other strategies for assistive technology learning to recommend to Seven Hills. The results from the exposition and the organizational process are discussed in the next section.

4.0 Results & Analysis

We worked with the Seven Hills Foundation to organize and carry out an exposition to inform the Seven Hills staff, individuals, and the general public about assistive technology. Though the exposition ran smoothly, the question of its effectiveness still exists. This chapter describes the results obtained from planning and carrying out the exposition. The Planning Guide & Toolkit we created is discussed and its functionality described. Finally, we reviewed alternative strategies for learning about assistive technology. These results will assist Seven Hills in creating an even more effective and well received exposition in the future.

4.1 Planning Guide & Toolkit for Future Expositions

The Planning Guide was created based off hosting the 2018 Assistive Technology Exposition. It included a step by step explanation of each task with recommendations for improving the exposition. It was created to be user friendly, with descriptive instructions to the task and a resources box at the end of the section. The resource box possessed the most relevant contacts for the task, the tools needed to complete the task, and the start date and duration of the task. A section of the Guide can be seen below in Figure 7.

1.5 Promotional Flyer

The layout of the advertisement flyer should be quick, to the point, and contain all necessary information about the exposition. Such information is: the date, time, location, exhibitors, and a registration link. Highlights about the event, to draw interest, is also highly recommended. This will make the flyer one of the best advertisement/informational tools and can be sent to all exhibitors as they are contacted. Once this information is gathered, the flyer will be made by the Marketing and Communications Department. The 2018 exposition flyer can be seen in Figure 6 below.

Resources
Contact: Office of Advancement, Nancy Benoit, Nbenoit@sevenhills.org
Tools: Promotional Flyer
Start 110 days before the Exposition, 10 days to complete

Figure 7: Sample AT Expo Task Page

One of the major components contained in the Guide was the Interactive Project Scheduler. This tool gave a timeline of when tasks should be completed and how long the task should take. The Scheduler encompassed all the tasks described in the Guide and organized them in order of start date. Though, the Scheduler in the Guide is static, an editable version is in the Toolkit. A partial snapshot of the Scheduler is in Figure 8 below. The Guide also included a list of all the tools in the Toolkit.

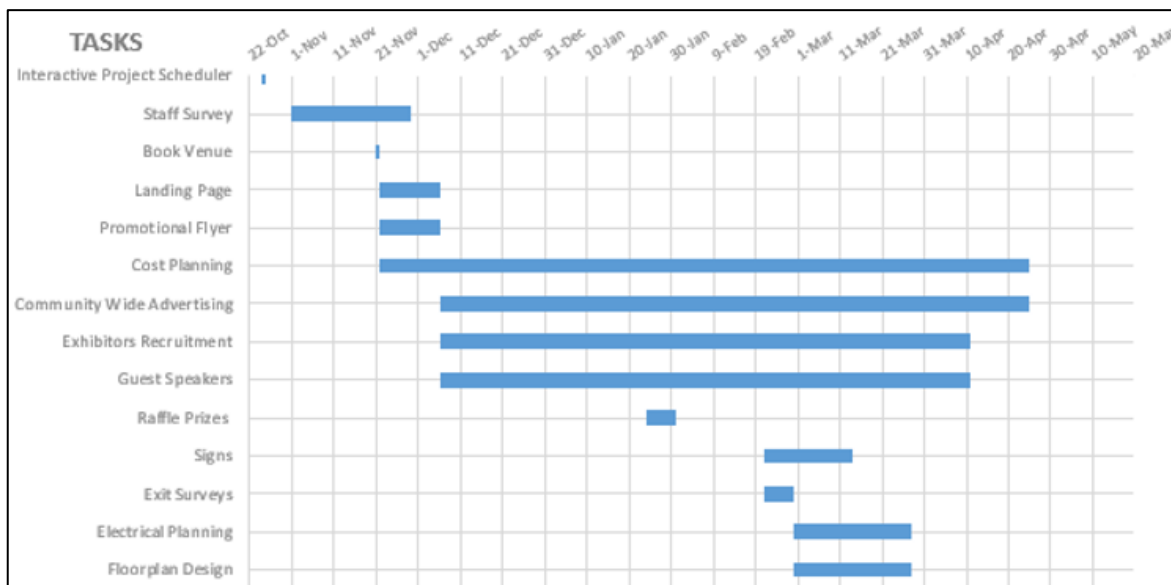


Figure 8: Interactive Project Scheduler Partial Snapshot

The Toolkit contained all the necessary documents and files to host an effective exposition. Each folder in the Toolkit represents a task that is named specifically in the Guide. The Toolkit and the Guide work together, as the Toolkit has all the editable files necessary to complete the task described in the Guide. Figure 9 below shows a snapshot of the Toolkit.

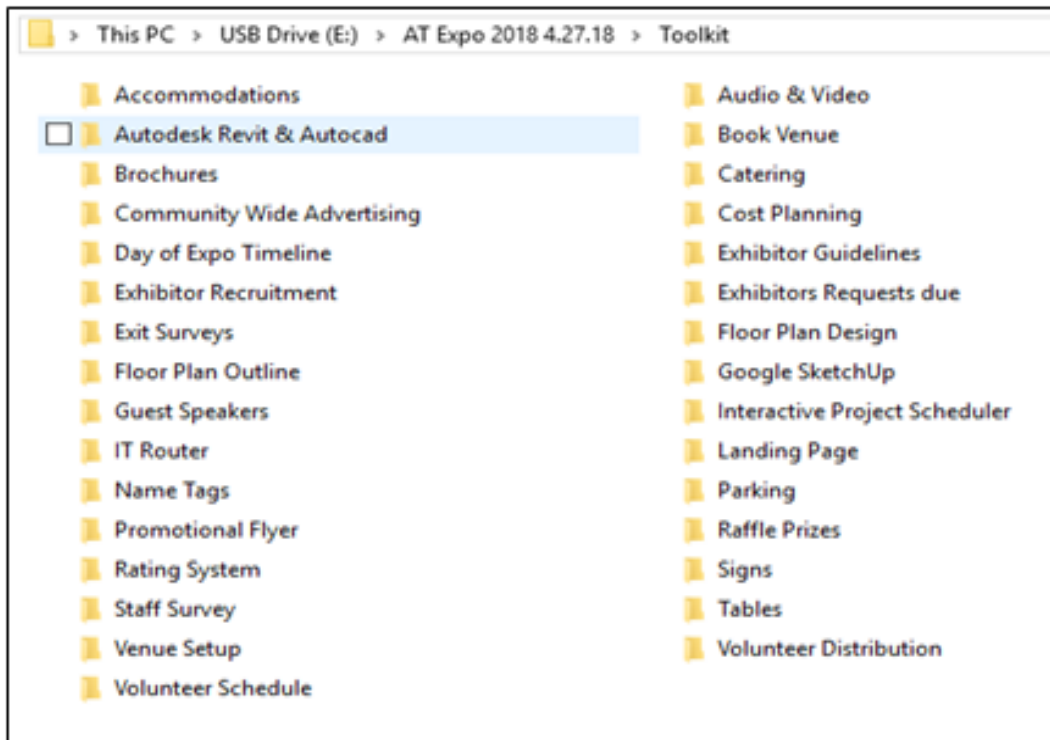


Figure 9: AT Expo Toolkit Topics

These two items were delivered to Seven Hills on a flash drive in order to give full control of the documents to Seven Hills staff. Figure 10 below shows excerpts from the Planning Guide. The complete Planning Guide and a few of the tools from the Toolkit, namely the floorplan models and the hype video, can be found on the Worcester Community Project Center website at the link below.

WCPC Website Link: <http://wp.wpi.edu/wcpc/projects/projects-by-term/spring-2018/seven-hills-foundation-executing-an-assistive-technology-exposition/>

Assistive Technology Exposition Planning Guide

The logo for the Seven Hills Foundation. It features a blue square with white stylized waves on the left. To the right of the square, the words "Seven Hills" are written in a large, dark blue serif font, and "Foundation" is written below it in a smaller, blue sans-serif font.

Produced by the 2018 Seven Hills Foundation WPI IQP Team,
Laurence Cafaro, Nicholas Day, James Rios, Lara Schmoyer

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Figure 10: Title Page, Table of Contents, and Example Sections from the Planning Guide

4.2 Exposition Planning Results

One of the tasks completed before the exposition was distributing a survey to the staff of Seven Hills. This measured the understanding of the need for assistive technology within Seven Hills. This section outlines the planning results for recruiting a guest speaker and the registration process producing a landing page for the exposition that was used as a marketing tool to register attendees, volunteers, and exhibitors.

4.2.1 Content of the Exposition

We created a survey that asked about the observed needs for assistive technology and education about assistive technology in 11 different categories. These categories are described in Appendix C, and the survey can be seen in Appendix H. The survey was sent out through Constant Contact to all the Area Directors, Clinicians, and the Affiliates of Seven Hills. Out of the 1740 recipients, 117 people opened the email, and 54 people responded to the survey. This was a response rate of 3.1%, which was low but similar to the response rate of a previous survey sent by a WPI IQP team. Figure 11 below shows the breakdown of responses to the survey.

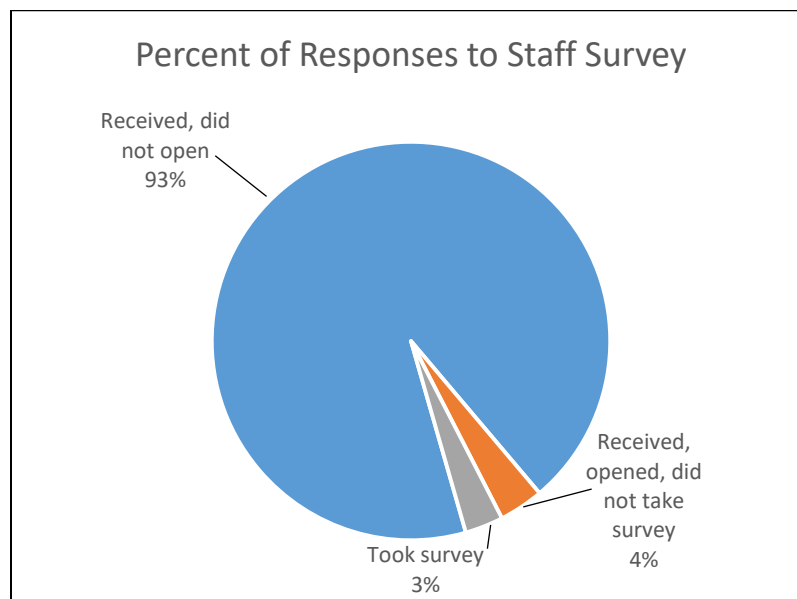


Figure 11: Percent of Responses to Survey by Area Directors, Clinicians, & Affiliates

The number of people whom each respondent worked with varied from four people to over 500, and the spread of needed assistive technology and assistive technology education stayed similar across respondents who worked with 50 or more individuals.

When just considering the assistive technologies themselves, there was slight preference for Daily Living, Augmentative Communication, and Recreation & Leisure technologies. However, the survey showed a distributed need in each of the eleven categories, with at least 25% of the respondents selecting a majority of these categories. The percentages of votes for each category can be seen in Figure 12 below.

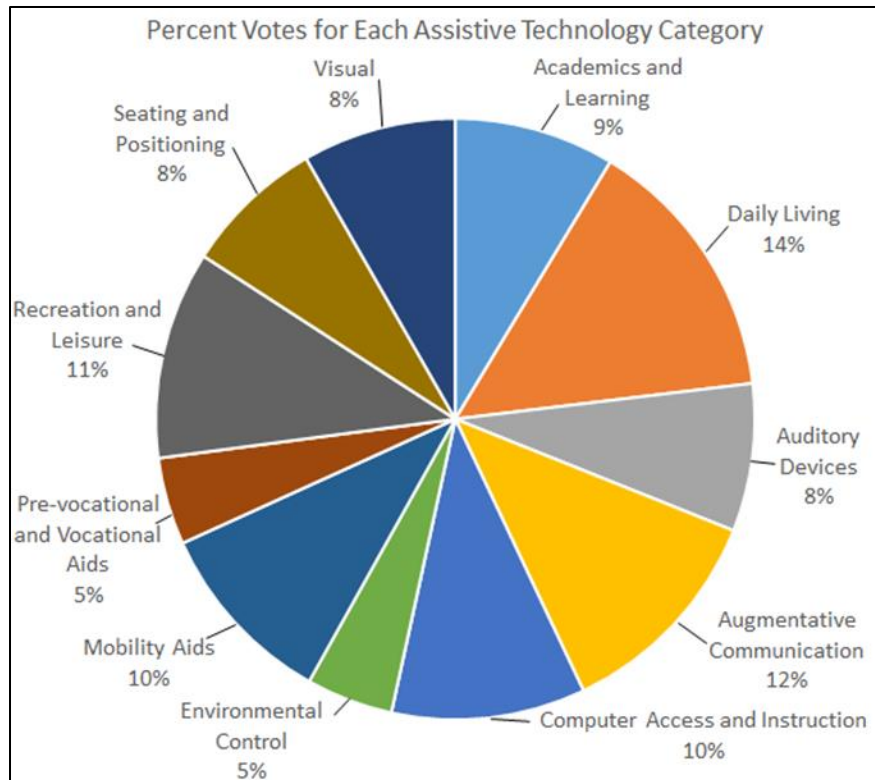


Figure 12: The Percent of Total Votes for Each Category of Assistive Technology

However, the survey also inquired about the need for education about assistive technology. The top categories in need of education were consistent with the top categories in need of technology. Daily Living and Augmentative Communication were still, respectively, the top two categories in need. Except for one section, Pre-vocational and Vocational Aids, every category had at least 25% of respondents indicating observed need. The percentages of votes for each category can be seen in Figure 13 below. These two surveys demonstrated that while moderate focus towards higher need categories of assistive technology and education was necessary, the exposition needed to cover a wide and varied range of assistive technologies.

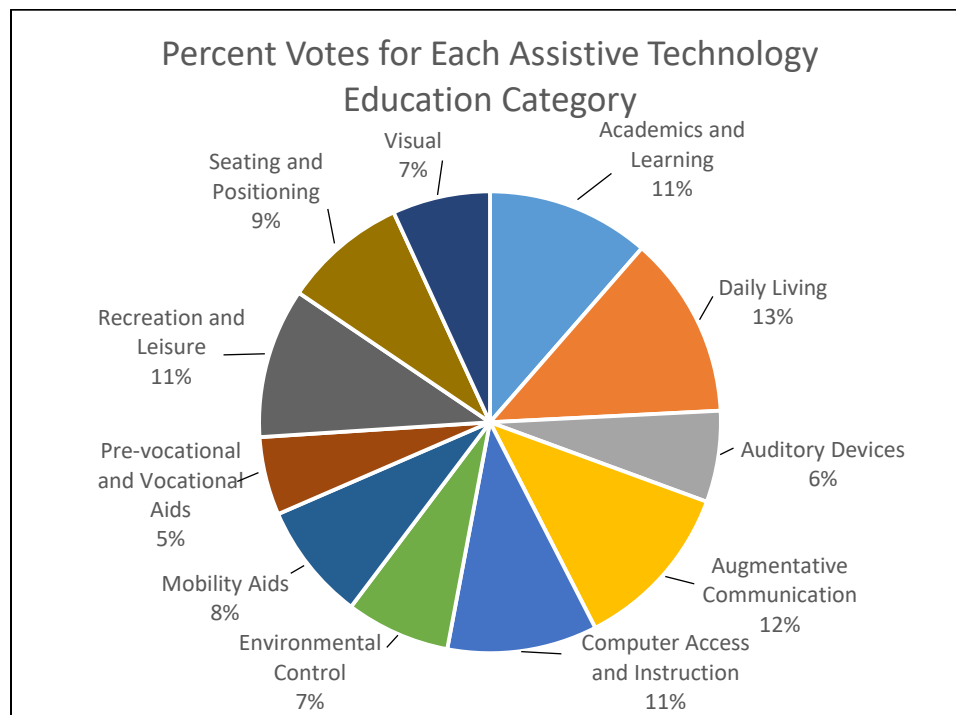


Figure 13: The Percent of Total Votes for Each Category of Education about Assistive Technology

In addition to the survey, six informal interviews were conducted as we were introduced to staff working for Seven Hills. Overall, the interviews indicated that staff needed assistive technologies and education about assistive technology in Daily Living.

The information from the survey and interviews was analyzed and presented to our sponsors, Ms. Des Roches and Mr. Kessler, to help determine the exposition content. We targeted exhibitors that provide hands-on demonstrations of assistive technology, as this was a shortcoming of the 2017 exposition. All the exhibitors from the 2017 exposition were contacted, inviting them back and requesting they bring interactive displays. We also did research on other exhibitors in the Worcester and surrounding areas that provide assistive technology to increase the diversity and size of the exposition. We focused on adding exhibitors that specialized in the three categories the survey showed needed both technology and education: Daily Living, Augmentative Communication, and Recreation & Leisure. In addition, the sponsor stated that they wanted mobility technologies to be a focus in this year's exposition.

4.2.2 Registration

We determined that there should be two registration pages: one for exhibitors and one for attendees/volunteers. Having an exhibitor registration page made it easy for us to confirm their attendance and address any needs they might have. The exhibitor registration page closed 5 days before the exposition to allow for the final count of exhibitors and the finalized floorplan to be determined. The attendees/volunteers registration page opened a month before the exposition and closed the night before the exposition. The timing of the registration window was set so that the maximum number of attendees could register for the exposition. Both the attendees/volunteers and the exhibitors' registration pages were then exported into an excel spreadsheet on a nightly basis. In addition, sign in sheets were in place at the exposition for attendees who had not registered themselves. This made it very efficient to keep track of the number of people that had registered and attended the exposition. The two registration pages can be seen in Appendix I.

4.2.3 Guest Speakers

For a guest speaker, we tried to recruit Massachusetts Senator, Harriette Chandler to speak. Unfortunately, Senator Chandler was unable to attend the exposition, due to a previous commitment. We turned to Massachusetts House Representative Kimberly Ferguson as an alternative to Senator Chandler. Representative Ferguson was quick to respond back; however, she unfortunately was unable to attend the exposition as well. She offered to record a video to play at the exposition, which we accepted. This video was posted online the morning of the exposition to serve as a reminder of the event. An individual who uses an Eyegaze system, which tracks her line of vision for her to speak, volunteered to open the exposition. This speaker drew lots of positive attention to the Seven Hills Foundation, as she was a representative of the audience that the exposition was designed to serve.

4.2.4 Organizing Volunteers to Operate Exposition

The volunteers were asked to work on a rotating schedule to prevent overworking them. The volunteers were dispersed throughout the exposition, doing jobs ranging from managing the raffle table, to welcoming and signing in attendees, to supporting people taking the exit surveys. Lunch was provided for the volunteers on a staggered schedule so that some volunteers were always available on the floor to help. The staggered lunch schedule was constructed by

overlapping the first and second shifts by an hour. There was a total of 35 volunteers signed up for the 2018 Exposition.

4.3 Post Exposition Results

The exhibitors were surveyed during breakdown. Fifty of the roughly 200 attendees (25%) and 20 of the 24 attending exhibitors (83%) took the exit survey. Three of the exhibitors who had registered for the exposition never arrived. The attendees were mostly Seven Hills staff members or members of the general public, but the overall attendee distribution was diverse. The diversity of the attendees can be seen in Figure 14 below. The attendees who chose “Other” consisted of staff from the Seven Hills Charter School, a Department of Development Services clinical team member, and staff from Brockton Area Multi-Services, Inc (BAMSI).

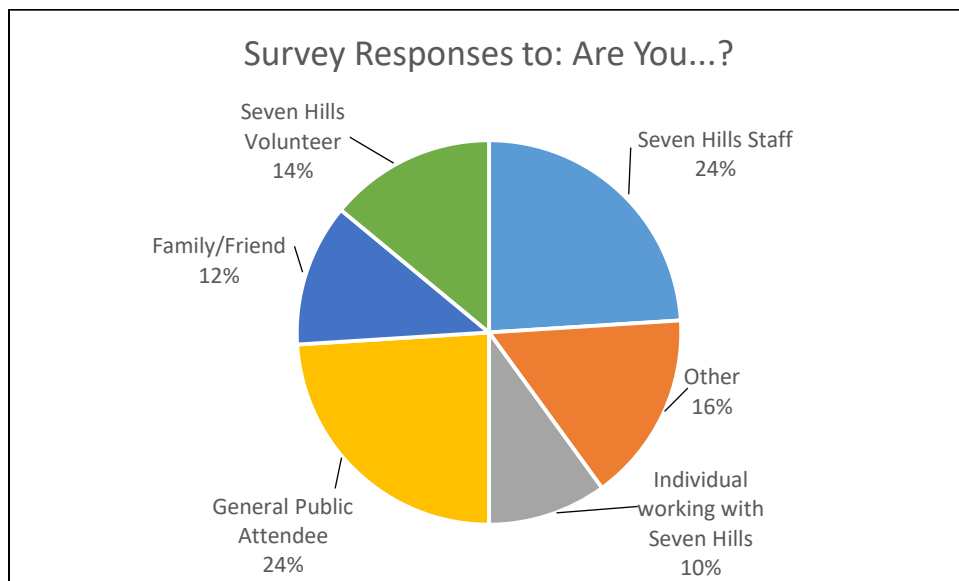


Figure 14: "Are You...?" in the Attendee Exit Survey

The exhibitors and attendees were asked multiple questions about their experience at the exposition in the exit surveys. In addition, feedback about the exposition was requested. The questions enquired about: advertisement feedback, visit duration, satisfaction, venue, educational effectiveness, and future exposition interest. The attendees/volunteer and exhibitor exit surveys can be seen in Appendix J.

4.3.1 Advertisement Feedback

The majority of the attendees heard about the exposition through email or by word of mouth, with 76% of attendees learning about the event through these two methods. Figure 15 below shows the distribution of responses to the survey. This Figure shows that very few people learned about the exposition through posters or flyers or through social media. This means that these two methods are not the most effective at drawing attendees, and so should not be the focus of promotional moves in the future. The attendees who chose “Other” were informed of the event by their boss or by the project team.

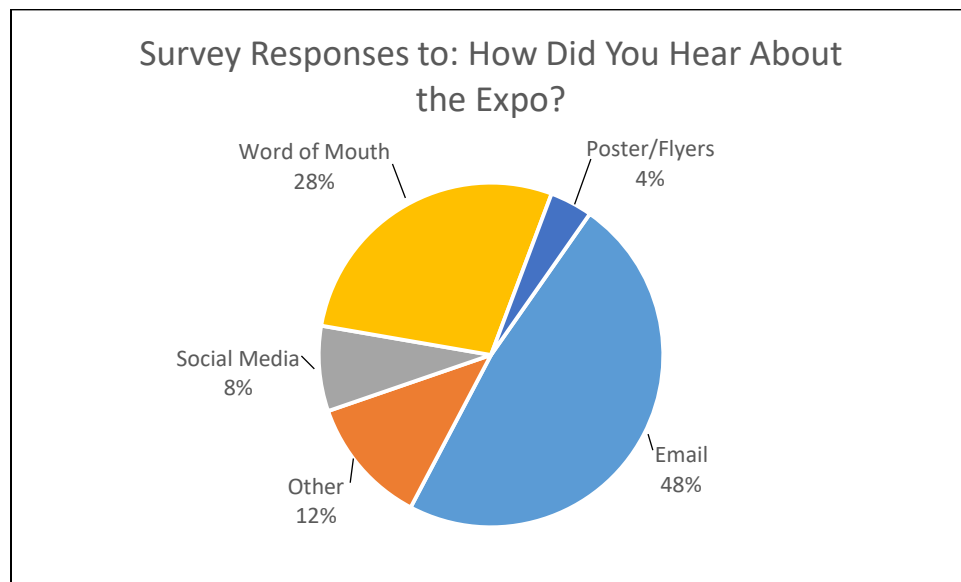


Figure 15: "How Did You Hear About the Expo?" in the Attendee Exit Survey

4.3.2 Visit Duration

The majority of the attendees (86%) arrived before 1:00 pm. In addition, 10% of the attendees arrived before the exposition officially started. Figure 16 below shows the number of people that arrived each hour of the exposition. Due to the severe drop off of arriving attendees after 1:00 pm, the exhibitors were allowed to pack up and leave at 2:30 pm, as there were no more attendees at the exposition.

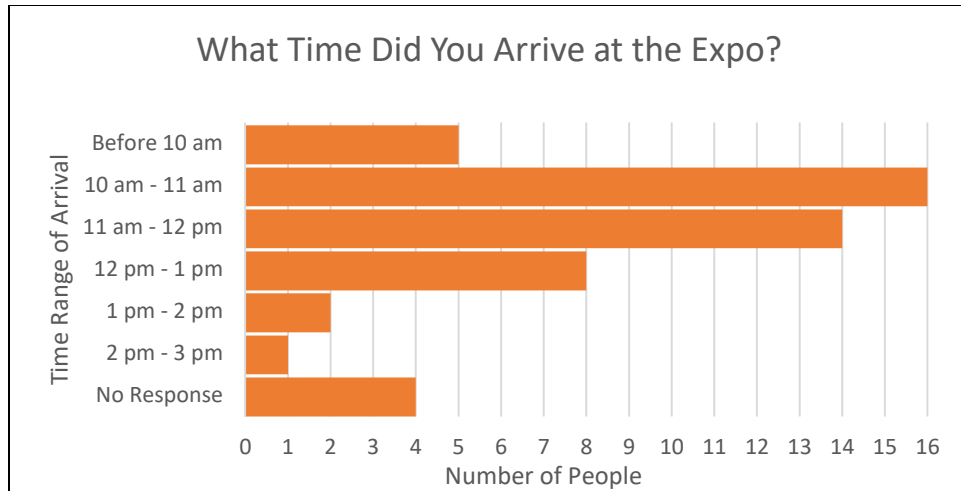


Figure 16: "What Time Did You Arrive at the Expo?" in the Attendee Exit Survey

While 86% of the attendees arrived before 1:00 pm, there was no uniform length of time that the attendees all stayed for. Very few people stayed for less than an hour, and no attendees stayed for more than 3 hours. Ninety percent of the attendees stayed between 1 hour and 3 hours. Figure 17 below shows the spread of responses to the survey.

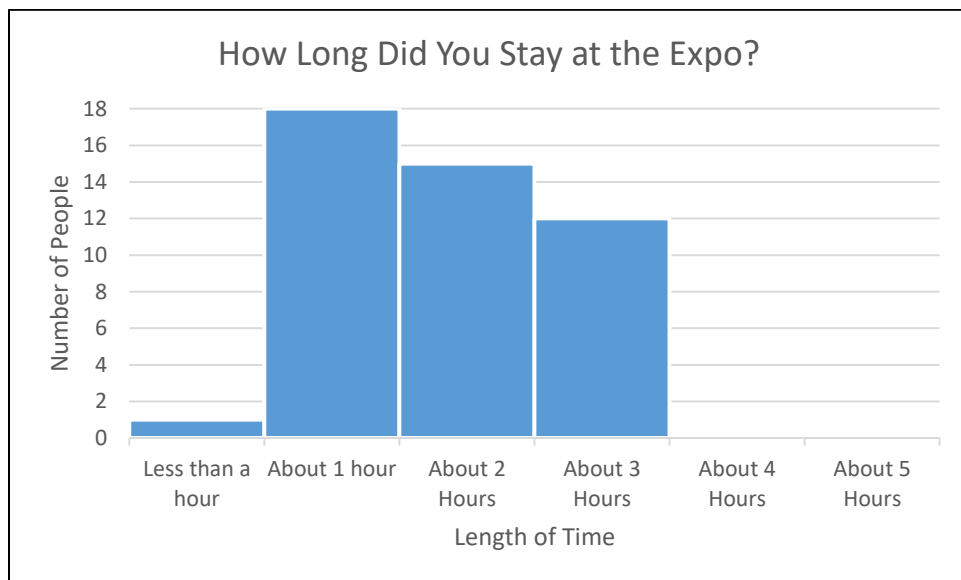


Figure 17: "How Long Did You Stay at the Expo?" in the Attendee Exit Survey

4.3.3 Satisfaction

Of the attendees, 90% rated the overall exposition either excellent or good. The average score the attendees gave the exhibitors' tables on the Exhibitor Rating System was a 2.9 out of

3.0. Additionally, the exhibitors all felt the exposition was executed moderately, very, or extremely well. Figure 18 and Figure 19 below show the responses to the survey questions.

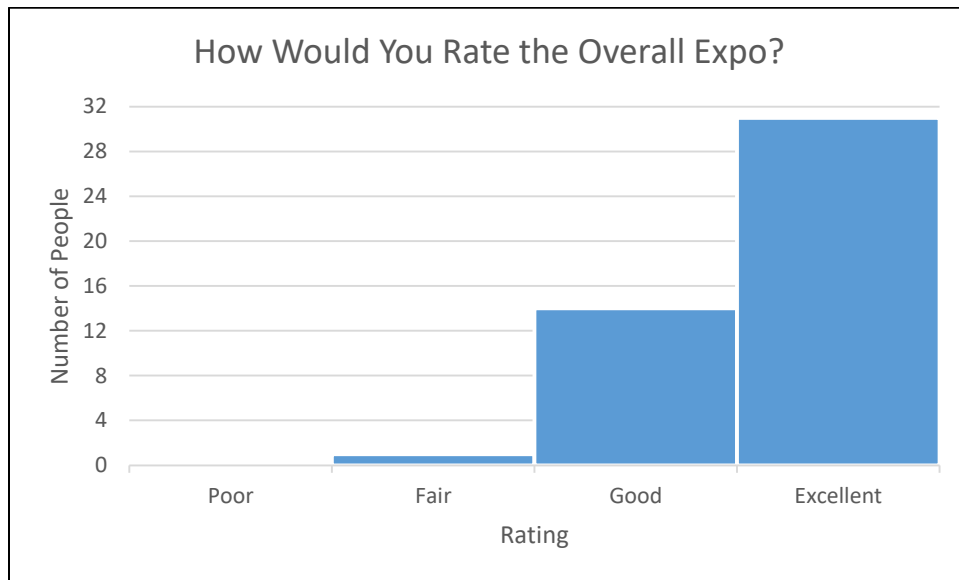


Figure 18: "How Would You Rate the Overall Expo?" in the Attendees Exit Survey

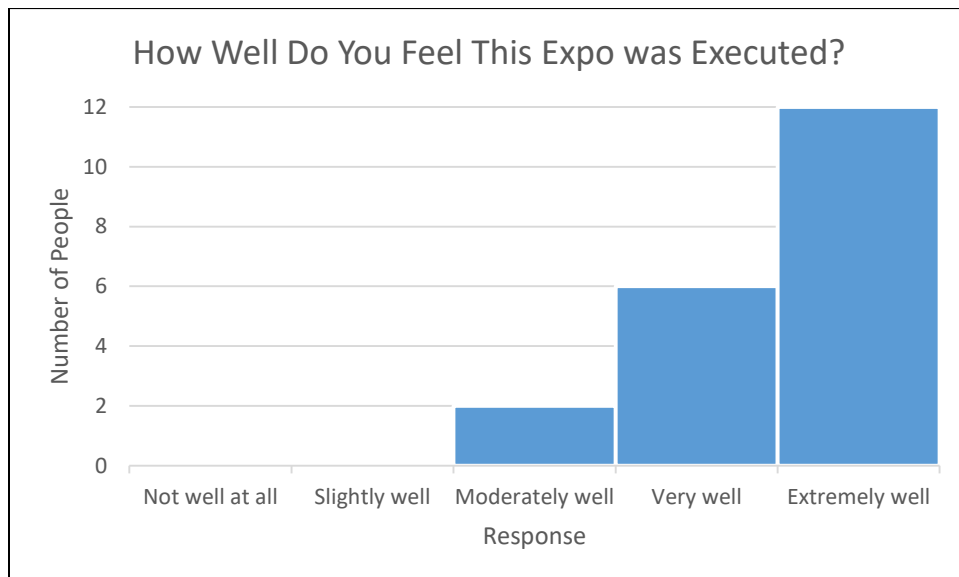


Figure 19: "How Well Do You Feel This Expo was Executed?" in the Exhibitor Exit Survey

Eighty percent of the exhibitors responded that the exposition met their expectations extremely or very well. An additional 15% said that it met their exposition moderately or slightly well. Only one exhibitor said that the exposition did not meet their expectations. Figure 20 below shows the distribution of the responses in the survey.

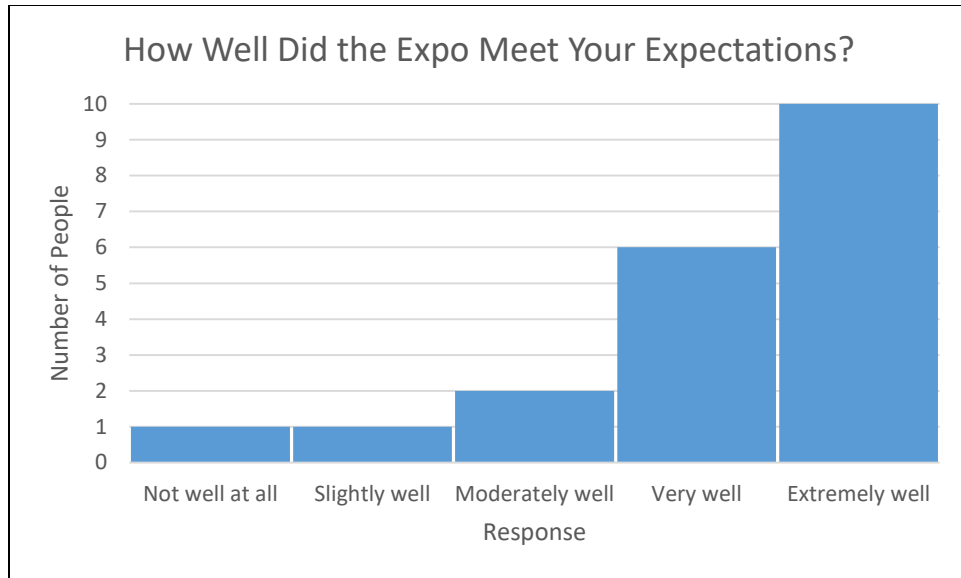


Figure 20: "How Well Did the Expo Meet Your Expectations?" in the Exhibitor Exit Survey

Of the exhibitors, 70% were satisfied or extremely satisfied with the number of attendees that visited their tables. An additional 20% were neither satisfied nor dissatisfied. Only two of the exhibitors reported that they were dissatisfied with the number of attendees that visited their tables. Figure 21 below shows the distribution of responses to the survey.

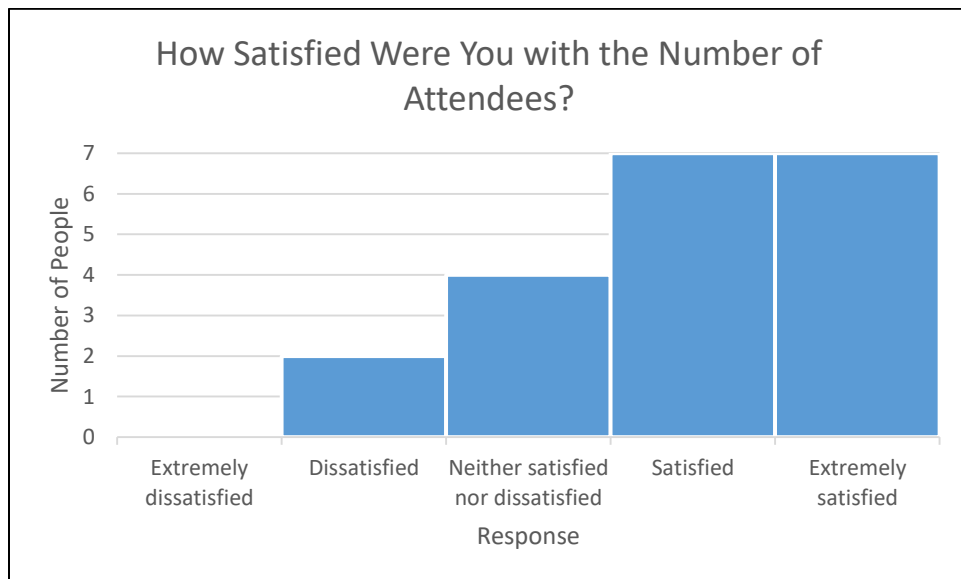


Figure 21: "How Satisfied Were You with the Number of Attendees?" in the Exhibitor Exit Survey

4.3.4 Venue

The WDH Program Area was the appropriate size for the exposition. In the exit survey, 84% of the attendees responded that the location was either good or excellent, and 88% said that the layout of the exposition was either good or excellent. Figure 22 and Figure 23 below show the breakdown of the responses to the survey.

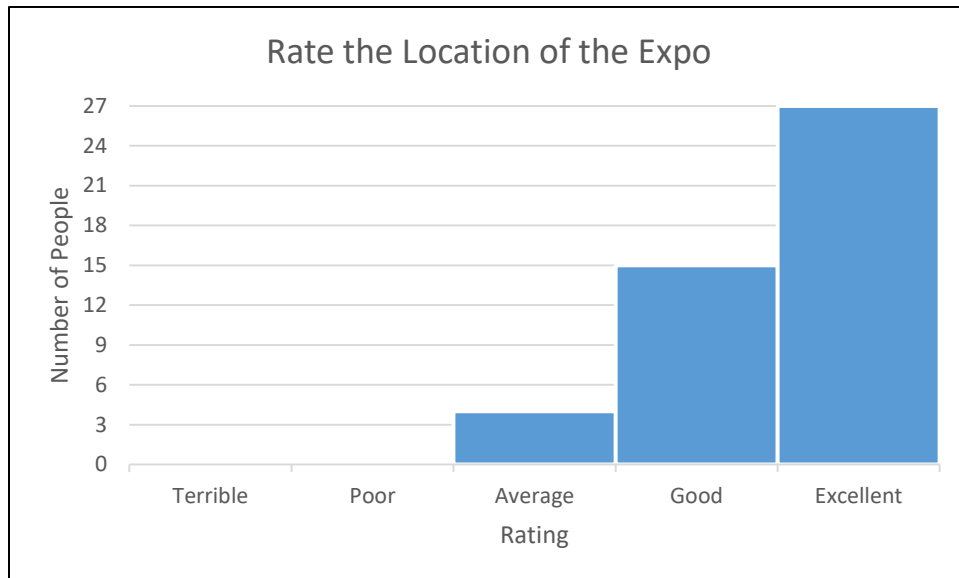


Figure 22: "Rate the Location of the Expo" in the Attendee Exit Survey

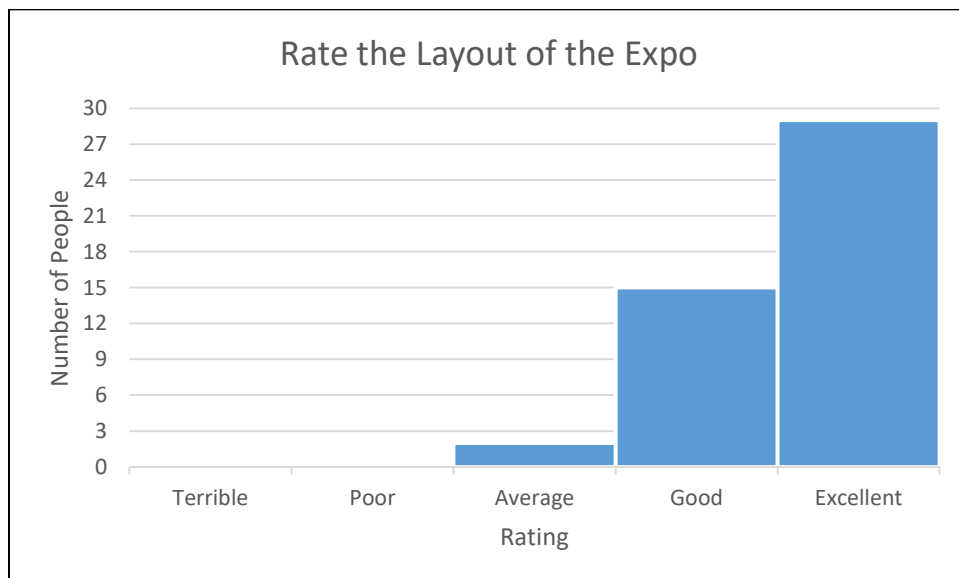


Figure 23: "Rate the Layout of the Expo" in the Attendee Exit Survey

The 2017 floorplan was used as a guide in designing the new layout. The new floorplan can be found in Appendix K. Ninety-five percent of the exhibitors said that they were satisfied or

extremely satisfied with their location on the exposition floor, and 95% said that they were satisfied or extremely satisfied with the amount of space they had. One exhibitor responded that they were dissatisfied with every aspect of the exposition, including these two facets. This exhibitor left a comment stating that the attendees were not what they were expecting. Figure 24 and Figure 25 below show the breakdown of responses to the survey.

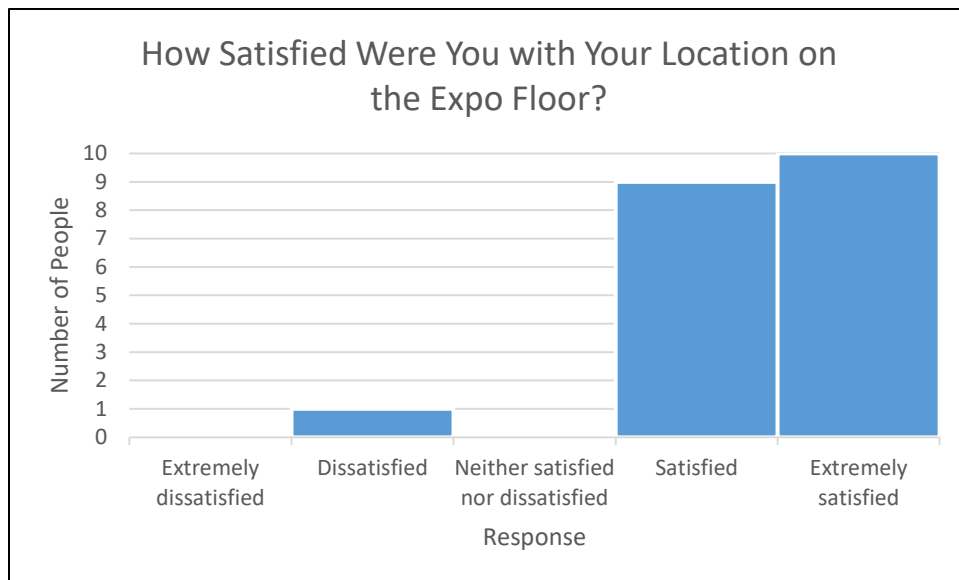


Figure 24: "How Satisfied Were You with Your Location on the Expo Floor?" in the Exhibitor Exit Survey

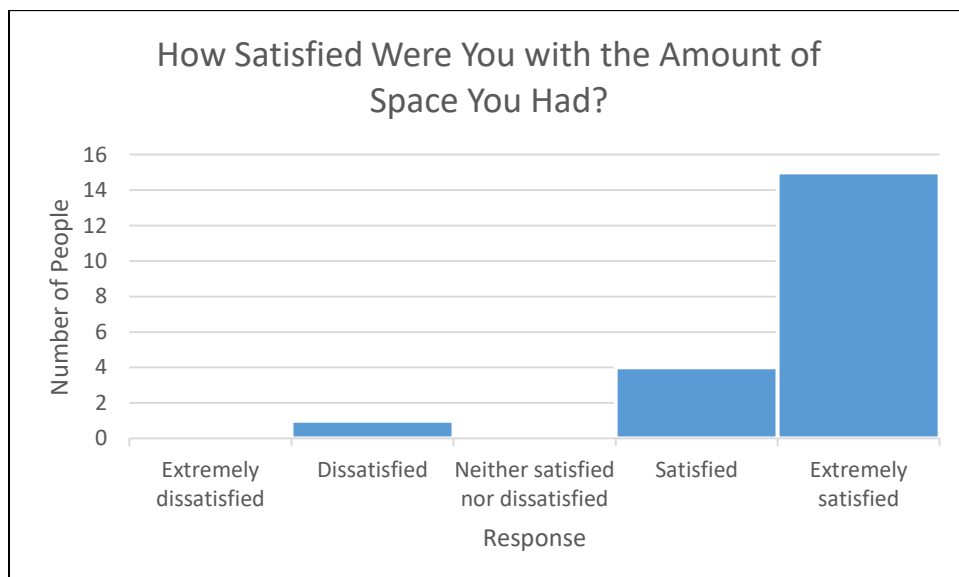


Figure 25: "How Satisfied Were You with the Amount of Space You Had?" in the Exhibitor Exit Survey

4.3.5 Educational Effectiveness

One of the questions on the exit survey asked respondents who identified themselves as Seven Hills staff members about the amount they learned about assistive technology. Ninety-two percent of the staff attendees reported that they learned a moderate amount to a great deal about assistive technology. More importantly, none of the staff attendees responded that they learned nothing about assistive technology while at the exposition. Figure 26 below shows the responses to the survey.

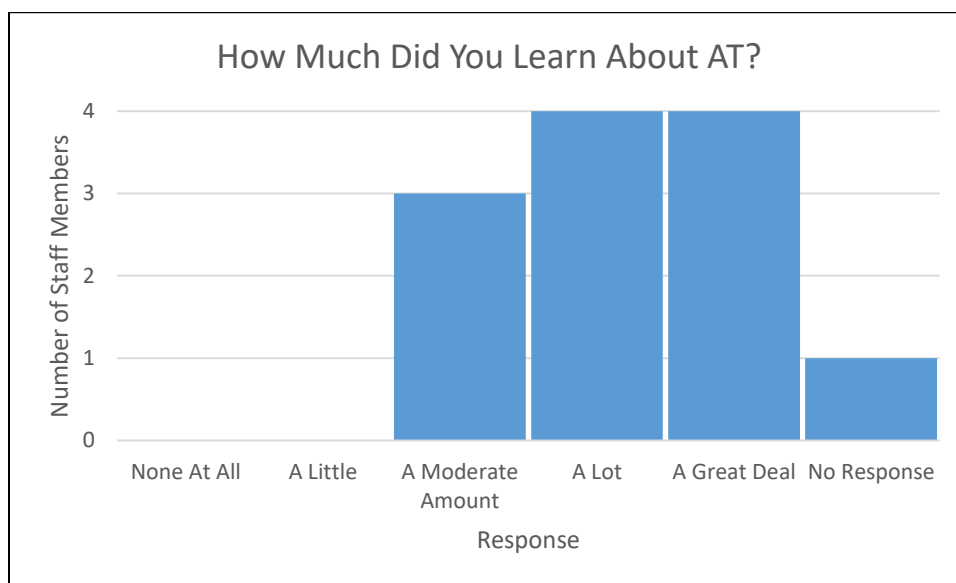


Figure 26: "How Much Did You Learn About AT?" in the Attendee Exit Survey

4.3.6 Future Exposition Interest

Overall, the exhibitors and attendees reported that the exposition went well and had good content. However, this doesn't mean that they wish to attend another exposition like this one. Our survey results show that 95% of the exhibitors would be willing to come to another exposition hosted by Seven Hills. The attendees were more spread out in their response, but 82% said that they were extremely or somewhat likely to attend future expositions by Seven Hills. An additional 6% said that they were neither likely nor unlikely to attend again. Two respondents said they would be unlikely to come again. Figure 27 and Figure 28 below show the responses to the surveys.

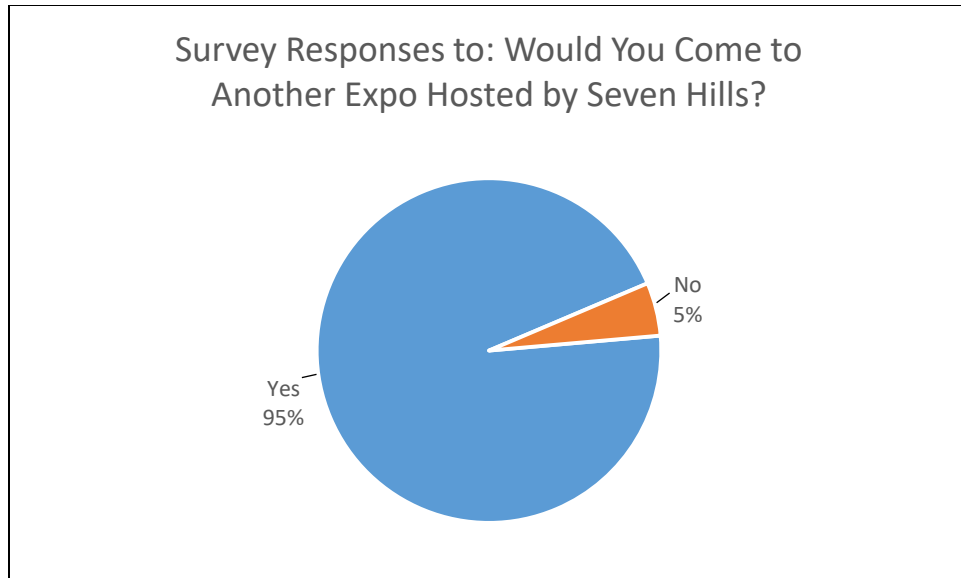


Figure 27: "Would You Come to Another Expo Hosted by Seven Hills?" in the Exhibitor Exit Survey

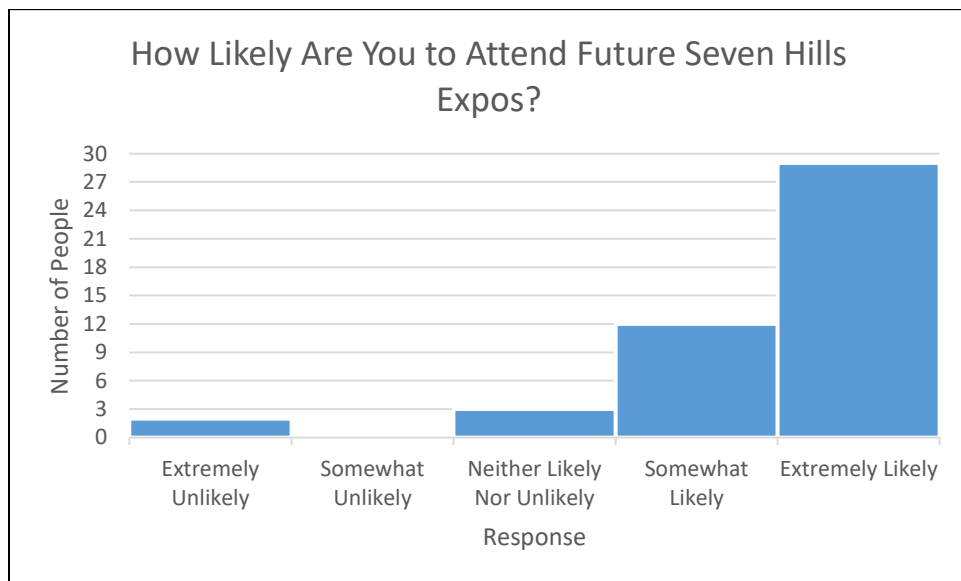


Figure 28: "How Likely Are You to Attend Future Seven Hills Expos?" in the Attendee Exit Survey

The results of the exit survey showed that the attendees and exhibitors both thought that the exposition ran successfully and provided useful content. In addition, the Seven Hills staff at the exposition learned a significant amount about assistive technology, meaning the exposition accomplished providing Seven Hills staff with assistive technology knowledge and education, which was one of the main goals of the exposition. Finally, the vast majority of the exhibitors and attendees all responded that they would come to future expositions like this one.

Further survey questions were asked, but were determined to not be necessary for detailed analysis in the report. The results of these further questions can be seen in Appendix L.

4.4 Other Strategies for Assistive Technology Learning

Seven Hills Foundation already offers a variety of further education techniques such as training sessions, Lynda, and eAcademy (W. Sodeman, personal communication, April 16, 2018). There are many benefits and draw backs to each method. The training sessions are a good way to teach people about new technologies or creative ideas. However, everyone must come to one place to benefit, and the training sessions often last the entire day. This can be challenging due to the staff's work schedule. This is why eAcademy and Lynda have been picking up the popularity with the staff. Lynda and eAcademy are paid online programs and can be completed at the viewers' own pace and time. Lynda provides tutorials on project management, as well as for various programs, such as: Computer Aided Design (CAD), Building Information Modeling (BIM), Microsoft Office programs, and Audacity (LinkedIn Corporation, 2018). eAcademy offers courses in similar topics, providing instruction in subjects ranging from Microsoft Office programs to leadership and critical thinking skills (Amego Inc., 2018). The Seven Hills Foundation possesses licenses for both Lynda and eAcademy, and encourage their staff to participate in these two programs.

In addition to programs like Lynda and eAcademy, online resources are numerous. There are many sites that can provide useful information on identifying assistive technology, creating homemade assistive technologies, and customizing devices to serve as assistive technologies. The IQP team determined through their research that websites like Pinterest, RESNA, Ability Tools, Google, and YouTube all provide access to information about assistive technology and adaptive devices. Searching these sites for specific or general assistive technologies results in numerous options and opportunities for new ideas. The downfall with these sources is that people need to do the research on the best solution. However, a large number of results can be found with a small investment of time, even if the results are not entirely perfect.

If resources within the Seven Hills Foundation and online are not enough, there are other places to go for personal interactions to learn more. Easter Seal's Assistive Technology Regional Center (ATRC) or other expositions such as the Abilities Expositions are potential resources to go to. In Easter Seal's ATRC, there is a variety of assistive technologies on display. These devices can be put on loan for people who are in need of devices. A staff member at Easter Seals

MA is available on appointment to talk with anyone interested in learning more about assistive technology (Easter Seals Disability Services, 2018). Just like the 2018 Assistive Technology Expo at the Seven Hills Foundation, other organizations and companies produce expositions that showcase assistive technology options.

5.0 Recommendations

Throughout the process of designing and planning the assistive technology exposition, we considered ways to improve sections of the project and have listed them here. These were largely based on the feedback received at the 2018 Exposition. Additional suggestions were noted and thence added to our list. The hope is that through these suggestions, future events would be easier to run and produce exemplary results. The recommendations that we have for the Seven Hills Foundation in respect to developing an exposition are all within the Planning Guide & Toolkit. Below are a few recommendations that we have for increasing the effectiveness of professional development in Seven Hills.

5.1 Ensure the Seven Hills Website is Up to Date

At present, the Seven Hills website is only consistently updated for landing pages for events. This means that many of the current staff are not present on the website, and many of the staff listed as contacts no longer work at Seven Hills in that capacity. An example of these issues is that Steven Kessler, who has worked at Seven Hills with Jean Des Roches for over a year, is not anywhere on the Assistive Technology webpages. Additionally, William Sodeman is the Chief Learning Officer, but the website still lists his predecessor. Having these contacts updated will make communication easier, as emails will reach the appropriate persons.

Additionally, none of the career pages note upcoming training sessions or orientations. Making use of the website as a resource to display professional development would be a potential way to reach the Seven Hills staff. The online resources Seven Hills possesses, such as Lynda and eAcademy should also be promoted. This allows staff to easily learn about opportunities Seven Hills offers to advance the staff's knowledge base. Because of the increase in flow of accurate and timely information it would encourage, we recommend that Seven Hills makes the effort to ensure its website is consistently kept up to date.

5.2 Increase Number of Training Sessions and Workshops about Assistive Technology

In our survey and informal interviews, a common comment was that more training sessions and workshops would be useful. One survey responder commented that "[s]taff would benefit from understanding which areas AT can assist with...and most importantly HOW TO

ACCESS [sic] it," a sentiment repeated often to us by other staff members. The training sessions and workshops do not all need to be in person, they can be online sessions, but there was an expressed desire by the staff for an increased number of opportunities to learn about assistive technology. Because of this expressed desire, we recommend that Seven Hills increases the number of training sessions and workshops that focus on assistive technology, how to find it, and how to use it.

5.3 Regularly Survey Staff to Track Areas of Need

The needs of staff change from year to year, so a reassessment of the needs of the staff is regularly necessary. Although the low response rate of most surveys means that only a fraction of the staff will respond to a survey, it is still a useful way to assess the needs of the staff. Regular reassessing the needs in Seven Hills would give training sessions, workshops, and events the adaptability to focus on addressing these needs as they develop. Because of this increased adaptability, we recommend that Seven Hills regularly surveys staff for changing areas of need.

5.4 Ensure Open Communication in Seven Hills

Currently, communication among Seven Hills staff members is difficult, as everyone is exceedingly busy. However, open communication is necessary to create events that fulfill the needs of Seven Hills. Though we understand that the staff members do not have much free time, we highly recommend that everyone involved in events such as the exposition make their best effort to constantly stay updated with each other. This project spent a large amount of time clarifying answers and processes due to information not being communicated throughout Seven Hills and to the team and other staff members effectively. Because of these unnecessary setbacks and delays, we recommend that Seven Hills works to ensure that communication pathways stay open and active during all projects.

5.5 Ensure AT Exposition Planning Guide & Toolkit are Updated for Each Exposition

We recommend that a copy of the entire toolkit and planning guide package is created with all of the documents labelled with "2018" to distinguish the year of use. This date can be

changed when the new version is created and modelled for that specific year. Doing so preserves the original documents, although these can also be recovered on the WPI Exposition Team 2018 website. Each individual file can be renamed as it is completed in a following year to track progress and prevent confusion.

6.0 Conclusion

Seven Hills Foundation was presented with a customizable Planning Guide & Toolkit for future use for expositions. This Guide compiled findings from throughout the seven-week process of coordinating the 2018 AT Exposition and organized the steps future teams should follow to keep the event coordinated. The report that accompanied this Toolkit and Guide provided background information and contained the results and conclusions from the exposition.

The goal of this guideline was to simplify the procedure of holding an assistive technology exposition. An interactive project scheduler served as the basis of organization for the Guide, outlining the order each activity should be completed. Each activity on the scheduler was accompanied by a description section in the Guide elaborating on the process. There was also a resource section for each section that displayed contact information, tools, start time, and expected time to completion. The Planning Guide was split up into two main sections: Planning the Exposition and Running and Evaluating the Exposition. Key contacts and the list of tools in the Toolkit were listed at the beginning of the report. The Assistive Technology Toolkit contained all of the tools and programs outlined in the Guide. These had the exact file names of sections in the Guide and were vital to the successful execution the exposition. Easily editable, these can be adjusted to fit the needs of future projects.

According to the results from the exit surveys, the exposition was extremely successful. Eighty-two percent of the attendees responded that they would be likely to come to future events run by the Seven Hills Foundation, and 90% rated the overall exposition excellent or good. About one fourth of the attendees completed an exit survey, while almost all of the exhibitors took them. From these, all staff members who took the survey said they learned at least a moderate amount of information about assistive technology at the exposition.

Lastly, the WPI IQP Team left behind a list of recommendations gathered from personal experience and feedback from the surveys. It's recommended that Seven Hills increases its effort to provide easily accessed educational material to its staff, both through training sessions or workshops and through online programs. In addition, Seven Hills' materials and information needs to be kept up to date to ensure that all of the staff are kept fully informed.

A series of recommendations for the exposition were included in the Planning Guide. An overall shorter or earlier event was suggested, accompanied by a closing “breakout session” to give exhibitors time to leave while attendees are engaged until later hours. Moving the event to a weekend was also recommended, though it was understood that this may not be effective due to the schedule of the Seven Hill staff members. Some smaller recommendations were to provide bags, a recycling bin, and an option to buy raffle tickets, and have more signage on the exposition floor. There was a lot of positive feedback, and the attendees of the 2018 Assistive Technology Exposition were excited to see what events the Seven Hills Foundation would run in the future.

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Appendices

Appendix A: Categories of Disabilities

The most general way to categorize disabilities is to categorize them into one of the following categories:

- ***Visible Disabilities*** – disabilities that can be objectively observed and measured by others. These disabilities often lead to marginalization or to the development of stereotypes of the person having the disability.
- ***Invisible Disabilities*** – disabilities whose manifestations do not evoke outward signs that may alert casual observers of a person's condition
- ***Physical Disability*** – a condition that limits one or more basic physical activity, including mobility and sensory activities. Examples include: spinal cord injuries, paraplegia, quadriplegia, amputations, cerebral palsy, seizure disorders, muscular dystrophy, arthritis, visual impairments and hearing impairments.
- ***Intellectual Disability*** – a disability originating prior to the age of 18, characterized by significant limitations in conceptual, social, and practical adaptive skills, for example, mental retardation.
- ***Cognitive Disability*** – an impairment that affects an individual's ability to access, process, or remember information, for example, learning disabilities (dyslexia, attention deficit disorder) and traumatic brain injury.
- ***Psychiatric Disability*** – a disability characterized by emotional, cognitive, and/or behavioral dysfunction, for example, autism, substance abuse, different types of mental illnesses.

(University of Iowa, 2018, p.1)

Appendix B: Challenges of Assistive Technologies

Research and development: To date, most research and development in the area of assistive technology has focused only on assistive products and is specific to high-income contexts. There is an urgent need for research and development to be driven by the needs of the diverse users and contexts around the globe, and for more focus on the workforce and service provision. There is increasing interest and investment in robots and other high-end assistive products. This should complement and not detract from efforts to ensure that basic, low-technology assistive products are available to everyone, including efforts to develop new products as well as those aimed at increasing the evidence base for the effectiveness of existing basic, low-technology assistive products, including individual and cost-level impacts.

Standards and regulation: There is also a lack of adequate regulation and oversight and there is a need for countries to adopt regulatory mechanisms to ensure that assistive products on the market meet the relevant standards and are safe and effective. For some assistive products, there are only international standards and they are often more specific to high-income settings. There is a need for quality and safety standards that are appropriate for diverse settings, especially rural environments. There is a similar need for standards for service provision.

Manufacturing: There are challenges regarding the quality, quantity and sustainability of assistive products manufacturing. There is also a lack of context-appropriate product design. Assistive products are often manufactured using parts that are not replaceable locally, for example, hearing aid batteries and wheelchair tires. This contributes to high abandonment rates. Assistive products need to be manufactured with parts that can be repaired, maintained and replaced locally.

Selection, pricing and reimbursement: There is a lack of awareness among service providers and users about the range of available products and their benefits. Affordable access to assistive technology needs governmental commitment to adequate and sustained financing. Where this does not exist, it leads to high out-of-pocket payments that are a burden for users and their families. People from the poorer sectors of society are often forced to rely on donations or charitable services: these often comprise distribution of large quantities of low-quality or used

products that are inappropriate for the user or the setting and are not maintainable, repairable or replaceable locally.

Procurement and supply: A comprehensive large-scale or national procurement system for assistive products is lacking in many countries and therefore only a limited range of users benefit from a limited range of such products. There are often challenges in ensuring a reliable supply of assistive products and their replacement parts, including batteries, due to problems related to funding, logistics or customs and excise. There is a need for coordinated and large volume procurement, as well as waivers on import duties, to reduce costs. Long-term planning and sustainable systems need to be in place to ensure a reliable supply of assistive products and their replacement parts.

Service provision: There is a need for standards that provide guidance on the essential elements of a quality assistive products service. Assistive products are often accessed without assessment and prescription, fitting, user training or mechanisms for follow-up, maintenance and repair. These are essential components of service provision, and should follow the overarching principles of people centered health services¹ for the needs of the user to be fully met. Without these key steps, assistive products are often of no benefit, abandoned or even cause physical harm, all of which result in extra health care costs. There are insufficient personnel at all levels of the health system with the required knowledge and skills to provide assistive products. Where people can get access to assistive products through health or welfare systems, such services are often stand-alone and fragmentary. People are often forced to attend multiple appointments at different locations, a chain of events that is costly and adds to the burden on both careers and health and welfare budgets.

Health emergencies: There is often a surge in demand for assistive products during and after health emergencies related to natural disasters or conflict: people with pre-existing needs often lose their assistive products during the emergency and many of the people injured require these products for the first time. The situation relating to donations is often exacerbated in health emergencies. Integrating provision of assistive products into emergency response planning and programs can facilitate earlier hospital discharge and prevent excess morbidity. Products need to be appropriate for the setting and mechanisms for follow-up, maintenance and repairs established

or rebuilt. Robust coordination mechanisms are needed to ensure that assistive products are procured and provided appropriately.

(Source: WHO, 2018, p.1)

Appendix C: Categories of Assistive Technology Devices

Academic and Learning Aids: Electronic and non-electronic aids such as calculators, spell checkers, portable word processors, and computer-based software solutions that are used by students who has difficulty achieving in the educational curriculum

Aids for Daily Living: Self-help aids for use in activities such as eating, bathing, cooking, dressing, toileting, and home maintenance

Assistive Listening Devices and Environmental Aids: Electronic and non-electronic aids such as amplification devices, closed captioning systems, and environmental alert systems that assist students who are hard of hearing or deaf with accessing information that is typically presented through an auditory modality

Augmentative Communication: Electronic and non-electronic devices and software solutions that provide a means for expressive and receptive communication for students with limited speech and language

Computer Access and Instruction: Input and output devices, alternative access aids, modified or alternative keyboards, switches, special software, and other devices and software solutions that enable students with a disabilities to use the classroom computer

Environmental Control: Electronic and non-electronic aids such as switches, environmental control units, and adapted appliances that are used by students with physical disabilities to increase their independence across all areas of the curriculum

Mobility Aids: Electronic and non-electronic aids such as wheelchairs (manual and electronic), walkers, scooters that are used to increase personal mobility

Pre-vocational and Vocational Aids: Electronic and non-electronic aids such as picture-based task analysis sheets, adapted knobs, and adapted timers and watches that are used to assist students in completing pre-vocational and vocational tasks

Recreation and Leisure Aids: Electronic and non-electronic aids such as adapted books, switch adapted toys, and leisure computer-based software applications that are used by students with disabilities to increase participation and independence in recreation and leisure activities

Seating and Positioning: Adaptive seating systems and positioning devices that provide students with optimal positioning to enhance participation and access to the curriculum

Visual Aids: Electronic and non-electronic aids such as magnifiers, talking calculators, Braille writers, adapted tape players, screen reading software applications for the computer, and Braille note-taking devices that assist students with visual impairments or blindness in accessing and producing information that is typically present in a visual (print) modality.

(Georgia Project for Assistive Technology, 2004, p.1)

Appendix D: RESNA Standards of Practice for Assistive Technology

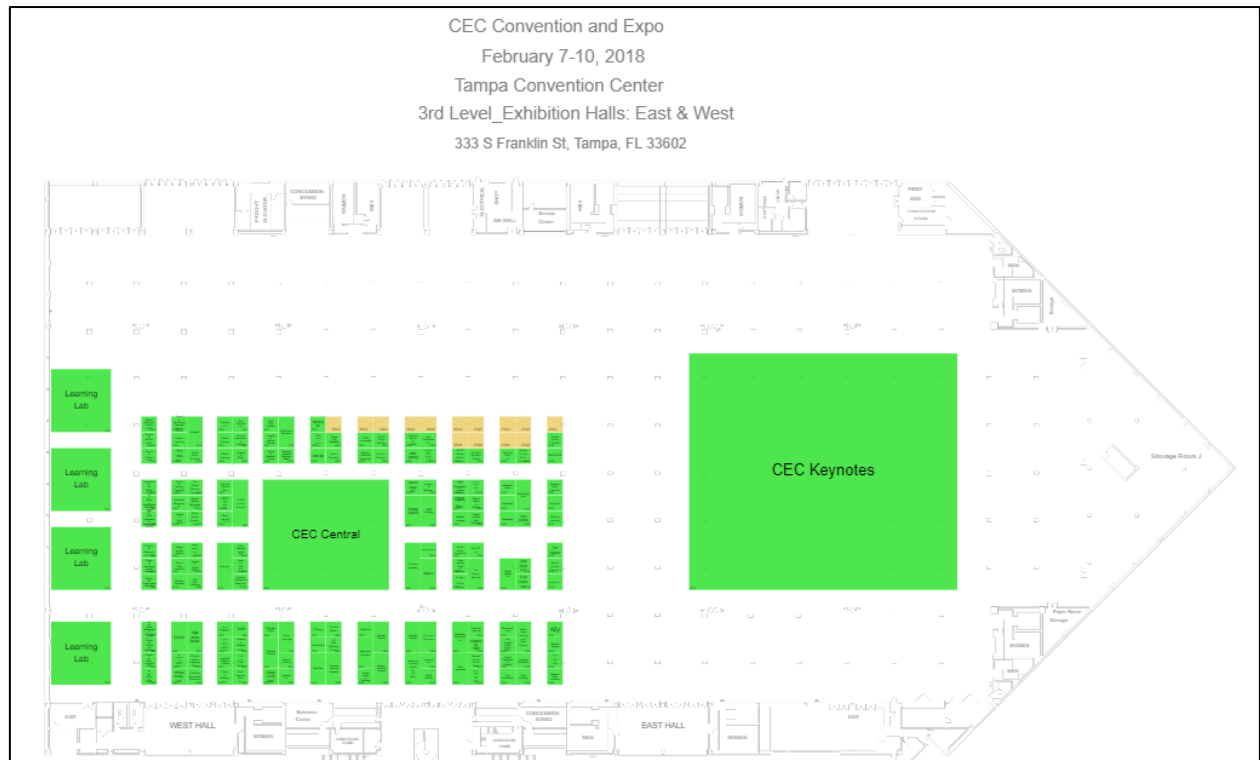
RESNA STANDARDS OF PRACTICE for Assistive Technology Professionals

These Standards of Practice set forth fundamental concepts and rules considered essential to promote the highest ethical standards among individuals who evaluate, assess the need for, recommend, or provide assistive technology. In the discharge of their professional obligations the following principles and rules shall be observed:

1. Individuals shall keep paramount the welfare of those served professionally.
2. Individuals shall engage in only those services that are within the scope of their competence, their level of education, experience and training, and shall recognize the limitations imposed by the extent of their personal skills and knowledge in any professional area.
3. In making determinations as to what areas of practice are within their competency, assistive technology practitioners and suppliers shall observe all applicable licensure laws, consider the qualifications for certification or other credentials offered by recognized authorities in the primary professions which comprise the field of assistive technology, and abide by all relevant standards of practice and ethical principles, including RESNA's Code of Ethics.
4. Individuals shall not willfully misrepresent their credentials, competency, education, training and experience in both the field of assistive technology and the primary profession in which they are members. Individuals shall disclose their employer and the role they serve in the provision of assistive technology services and devices in all forms of communication, including advertising that refers to their certification in assistive technology.
5. Individuals shall inform consumers or their advocates of any employment affiliations, and financial or professional interests that may be perceived to bias recommendations. In some cases, individuals shall decline to provide services or supplies where the conflict of interest is such that it may fairly be concluded that such affiliation or interest is likely to impair professional judgments.
6. Individuals shall use available resources to meet the consumers' identified needs including referral to other professionals, practitioners or sources which may provide the needed product and/or service.
7. Individuals shall cooperate with members of other professions, where appropriate, in delivering services to consumers, and shall actively participate in the team process when the consumers' needs require such an approach.
8. Individuals shall offer an appropriate range of assistive technology services which may include assessment, evaluation, trial, simulation, recommendations, delivery, fitting, training, adjustments and/or modifications and promote full participation by the consumer in each phase of service.
9. Individuals shall verify consumer's needs by using direct assessment or evaluation procedures with the consumer.
10. Individuals shall inform the consumer about all device options and funding mechanisms available regardless of finances, in the development of recommendations for assistive technology strategies.
11. Individuals shall consider future and emerging needs when developing intervention strategies and fully inform the consumer of those needs.
12. Individuals shall provide technology that minimizes consumers' exposure to unreasonable risk. Individuals shall provide adjustments, instructions or necessary modifications that minimize risk.
13. Individuals shall fully inform consumers or their advocates about relevant aspects of the final recommendations for the provision of technology, including the financial implications, and shall not guarantee the results of any service or technology. Individuals may, however, make reasonable statements about the recommended intervention.
14. Individuals shall document, within the appropriate records, the technology evaluation, assessment, recommendations, services, or products provided and preserve confidentiality of those records, unless required by law, or unless the protection of the welfare of the person or the community requires otherwise.
15. Individuals shall endeavor, through ongoing professional development, including continuing education, to remain current on assistive technology relevant to their practice including accessibility, funding, legal or public issues, recommended practices and emerging technologies.
16. Individuals shall endeavor to institute procedures, on an on-going basis, to evaluate, promote and enhance the quality of service delivered to consumers.
17. Individuals shall be truthful and accurate in public statements concerning their role in the provision of all assistive technology products and services.
18. Individuals shall not discriminate in the provision of services or supplies on the basis of impairment, diagnosis, disability, race, national origin, religion, creed, gender, age, or sexual orientation.
19. Individuals shall not charge for services not rendered, nor misrepresent services delivered or products dispensed for reimbursement or any other purpose.
20. Individuals shall not engage in fraud, dishonesty or misrepresentation of any kind, or forms of conduct or criminal activity that adversely reflects on the field of assistive technology, or the individual's ability to serve consumers professionally.
21. Individuals whose professional services are adversely affected by substance abuse or other health-related conditions shall seek professional advice, and where appropriate, voluntarily withdraw from practice.
22. Individuals shall respect the rights, knowledge, and skills of colleagues and others, accurately representing views, information, ideas, and other tangible and intangible assets including copyright, patent, trademark, design contributions, and findings.

(RESNA, 2016, p.1)

Appendix E: Other Assistive Technology Exposition Floorplans



(Council for Exceptional Children (CEC), 2018)



(Abilities Expo, 2018)

Appendix F: Assistive Technology Exposition Flyer



**ASSISTIVE
TECHNOLOGY**

Accessibility for All

AT EXPO

Wednesday, April 25, 2018

**10am - 3pm
Seven Hills Foundation, 81 Hope Ave., Worcester**

- Assistive Technology on Display
- In-Depth Demonstrations
- Hands-On Activities
- Do-It-Yourself Low-Tech Tools
- Raffle Prizes

Learn about the wide range of AT solutions that are opening the doors of opportunity and life experiences for individuals with disabilities.

Exhibitors Include: Apple, Microsoft, Perkins Library, Easter Seals MA, Tobii Dynavox, MassMATCH and more!

Register Today: bit.ly/AT-EXPO-18

Admission is free, registration is required.



Seven Hills
Foundation

81 Hope Avenue, Worcester, MA 01603 • 508.755.2340 • sevenhills.org

**Participants, families,
and staff of Seven Hills
Foundation:**

See the latest in innovative Assistive Technology (AT) on display at Seven Hills Foundation! Leading AT innovators from Worcester Polytechnic Institute and Apple, Inc., as well as premier exhibitors will demonstrate various AT solutions that are paving the way for the accessibility of us all!

For more information:

Contact Jean DesRoches at jdesroches@sevenhills.org



Appendix G: Exposition Task List

Day(s) Before Exposition:

- ☐ Set up exhibitor room and sensory break rooms
- ☐ Compile and organize requested items for exhibitors and speakers (extension cords and the like)
- ☐ Contact all exhibitors and speakers for final confirmation of attendance
- ☐ Contact all exhibitors, speakers, and volunteers with finalized schedule of events
- ☐ Contact all volunteers with finalized volunteer schedule

Day of Exposition:

- ☐ Take attendance of first shift of volunteers and set them to their assigned duties
- ☐ Oversee exhibitor and speaker arrival and set up
- ☐ Open doors for attendees
- ☐ Oversee Exposition
 - Track volunteer shifts
 - Track lunch shifts for volunteers and exhibitors
 - Ensure attendee food/drink station is always full
 - Ensure that sudden exhibitor/speaker requests are fulfilled
- ☐ Give exit survey to attendees leaving
- ☐ Oversee exhibitor departure
- ☐ Break down exhibitor room and sensory break rooms

Appendix H: Seven Hills Staff Survey Questions

The Seven Hills Foundation is working with a team of Worcester Polytechnic Institute juniors to organize and run an Assistive Technology Expo on April 25th, from 10 am to 3 pm. The purpose of this survey is to assess needs for assistive technology and assistive technology education in the Seven Hills Foundation staff. This will allow the Assistive Technology Expo to focus on meeting needs in Seven Hills. These results will be gathered anonymously unless identifying information is provided by the respondent. Any identifying data will be used only to connect with the respondent for further contact about the survey and expo. Any emails and phone numbers provided will be saved in an internal database but will not be shared with any third parties.

Thank you!

What is your job title?

What is an estimate of the number of individuals your sites serve?

Do you see a need for assistive technology?

- ☐ Yes
- ☐ No
- ☐ Unsure

Please mark the categories of assistive technology that would benefit the individuals you support:

☐ Academic and Learning

- ☐ Daily Living
 - ☐ Auditory Devices
 - ☐ Augmentative Communication
 - ☐ Computer Access and Instruction
 - ☐ Environmental Control
 - ☐ Mobility Aids
 - ☐ Pre-vocational and Vocational Aids
 - ☐ Recreation and Leisure
 - ☐ Seating and Positioning
 - ☐ Visual
 - ☐ Other:
-

Do you see a need for assistive technology education for your staff?

- ☐ Yes
 - ☐ No
 - ☐ Unsure
-

Please mark the categories of assistive technology education that would benefit the individuals you support:

- ☐ Academic and Learning
- ☐ Daily Living
- ☐ Auditory Devices
- ☐ Augmentative Communication
- ☐ Computer Access and Instruction
- ☐ Environmental Control
- ☐ Mobility Aids
- ☐ Pre-vocational and Vocational Aids
- ☐ Recreation and Leisure
- ☐ Seating and Positioning
- ☐ Visual
- ☐ Other:

Any comments or suggestions?

If you have any further questions, please leave an email or phone number we can contact.

Appendix I: Registration Pages

AT EXPO Attendee/Volunteer Registration

See the latest in innovative Assistive Technology (AT) on display at Seven Hills Foundation! Leading AT innovators from Worcester Polytechnic Institute and Apple, Inc., as well as premier exhibitors will demonstrate various AT solutions that are paving the way for the accessibility of us all!

* Required information

Personal Information

* First Name:

* Last Name:

* Email Address:

* Confirm Email Address:

Company/Organization Name

Please Select:

☐ Expo Attendee

☐ Expo Volunteer

For Volunteers - Availability

Please select your volunteer availability:

☐ 8am - 10am

☐ 10am - 1pm

☐ 12pm - 3pm

☐ 3pm - 5pm

Guest Information

You may add a maximum of 10

☐ Yes, I would like to receive your email newsletters

By submitting this form, you're granting
Seven Hills Foundation, Executive Offices, 21 Hope Avenue, Worcester, MA 01605, United States
<http://www.sevenhills.org>
permission to email you. You can revoke permission to mail to your email address at any time using the
Unsubscribe™ found at the bottom of every email. Constant Contact takes your privacy seriously (to see for yourself,
please read the Constant Contact [Email Privacy Policy](#)). Emails are sent via Constant Contact.

[Website View](#)

AT EXPO Exhibitor Registration

Be part of the latest in innovative Assistive Technology (AT) on display at Seven Hills Foundation! Showcase your product to professionals, educators, family members, and individuals looking to utilize assistive technology.

* Required information

Your Information

* Company/Organization Name

* First Name:

* Last Name:

* Email Address:

* Confirm Email Address:

Phone:

Number of exhibitors attending

Please provide information about your set up needs:

Do you need power?

- ☐ Yes
☐ No

How many 8' tables do you need?

- ☐ 1
☐ 2

How many chairs?

Will you be bringing any devices that create a lot of noise?

- ☐ Yes
☐ No

Do you have any ADA needs?

Would you like to donate a gift card or product from your company for our raffle? If so, please enter a description of it here:

☒ Yes, I would like to receive your email newsletters

Register

Appendix J: Exit Surveys

Attendee and Volunteer Exit Survey:

Default Question Block

Are you...

- ☐ Seven Hills Staff
 - ☐ Seven Hills Volunteer
 - ☐ Individual working with Seven Hills
 - ☐ Family/Friend
 - ☐ General Public Attendee
 - ☐ Other:
-

How did you hear about the Expo?

- ☐ Email
 - ☐ Social Media
 - ☐ Word of Mouth
 - ☐ Poster/Flyers
 - ☐ Other:
-

Was this the first time you attended one of our Expos?

- ☐ Yes
 - ☐ No
-

How would you rate the overall Expo?

- | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| Poor | Fair | Good | Excellent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
-

How would you rate the following aspects of the Expo?

- | | | | | |
|----------|------|---------|------|-----------|
| Terrible | Poor | Average | Good | Excellent |
|----------|------|---------|------|-----------|

	Terrible	Poor	Average	Good	Excellent
Date and Time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vendors and Tables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Layout	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keynote Speaker	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Refreshments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much did you learn about assistive technology?

None at all	A little	A moderate amount	A lot	A great deal
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What time did you arrive at the Expo?

- ☐ Before 10 am
- ☐ 10 am - 11 am
- ☐ 11 am - 12 pm
- ☐ 12 pm - 1 pm
- ☐ 1 pm - 2 pm
- ☐ 2 pm - 3 pm

How long did you stay at the Expo?

- ☐ Less than a hour
- ☐ About 1 hour
- ☐ About 2 hours
- ☐ About 3 hours
- ☐ About 4 hours
- ☐ About 5 hours

Based on your experience at this Expo, how likely are you to attend future Expos?

Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How likely are you to recommend future Expos to a friend/colleague?

Extremely unlikely Somewhat unlikely Neither likely nor unlikely Somewhat likely Extremely likely

☐ ☐ ☐ ☐ ☐

What did you like most about the Expo?

What did you like least about the Expo?

Any comments or suggestions?

Please provide your name and email or phone number if you are willing to answer a follow up survey about the Expo.

Exhibitor Exit Survey:

Default Question Block

How well do you feel this Expo was executed?

Not well at all
☐

Slightly well
☐

Moderately well
☐

Very well
☐

Extremely well
☐

How well did the Expo meet your expectations?

Not well at all
☐

Slightly well
☐

Moderately well
☐

Very well
☐

Extremely well
☐

How satisfied were you with...

	Extremely dissatisfied	Somewhat dissatisfied	Neither satisfied nor dissatisfied	Somewhat satisfied	Extremely satisfied
Your location on the Expo floor?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The amount of space you had?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The number of people who visited your booth?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The registration process?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The instructions before the Expo?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The onsite directions?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Set-up?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Break-down?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The volunteers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Would you come to another Expo hosted by the Seven Hills Foundation?

☐ Yes

☐ No

What did you like about the Expo?

What did you dislike about the Expo?

What additional prior information could have prepared you for the Expo?

Do you have any comments or suggestions?

The floor plan shows a large hall with various stations. On the left, there are Women's Bathrooms and Men's Bathrooms. The main area is divided by a central aisle. On the left side of the aisle, there are Sensory Break areas, a Registration desk, and an Entrance. On the right side, there are Refreshments, a Raffle, an Exit Survey, and an Exit. Numbered tables (1-28) are arranged in rows. A staircase is located at the bottom center.

Appendix L: Additional Exit Survey Results

Attendee/Volunteer Results

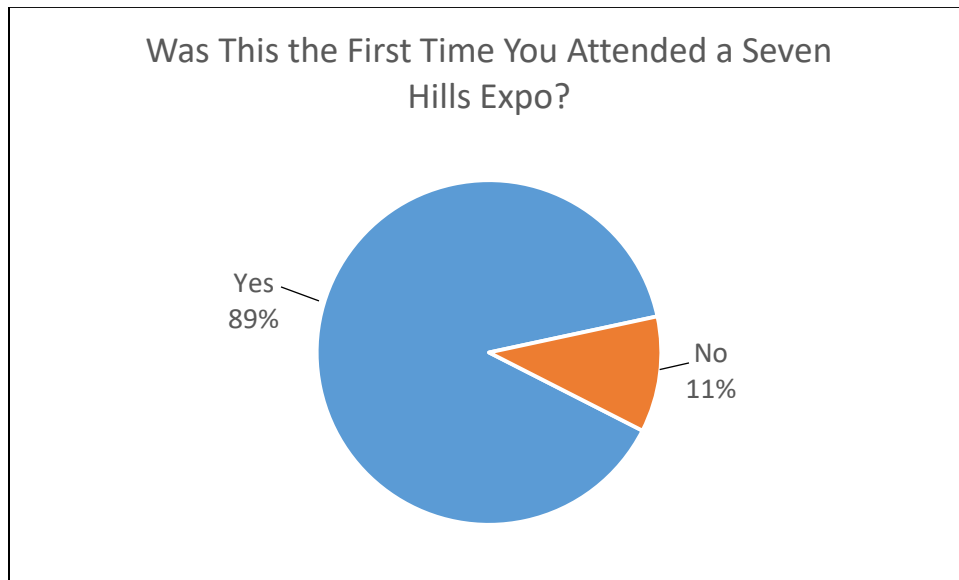


Figure 29: "Was This the First Time You Attended a Seven Hills Expo?" in the Attendee Exit Survey

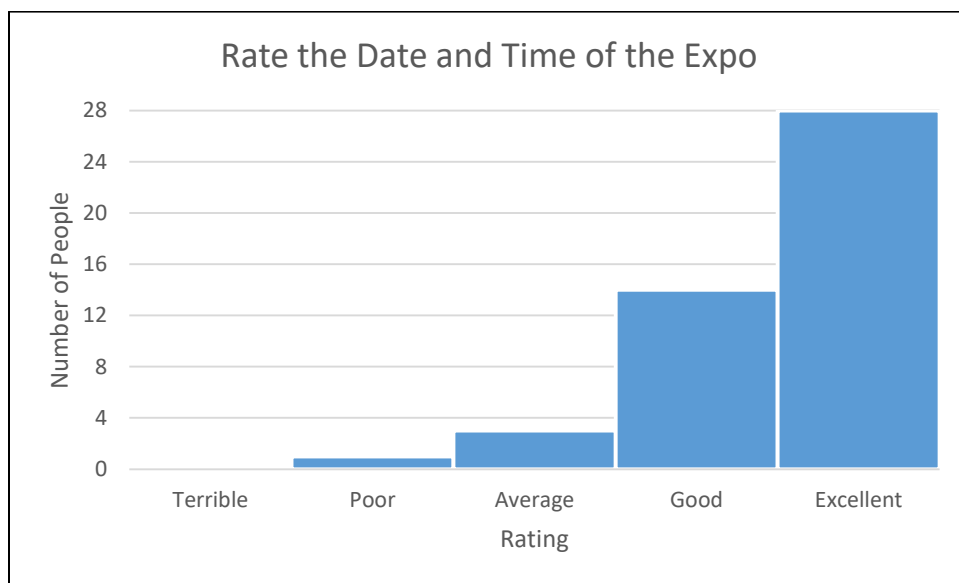


Figure 30: "Rate the Date and Time of the Expo?" in the Attendee Exit Survey

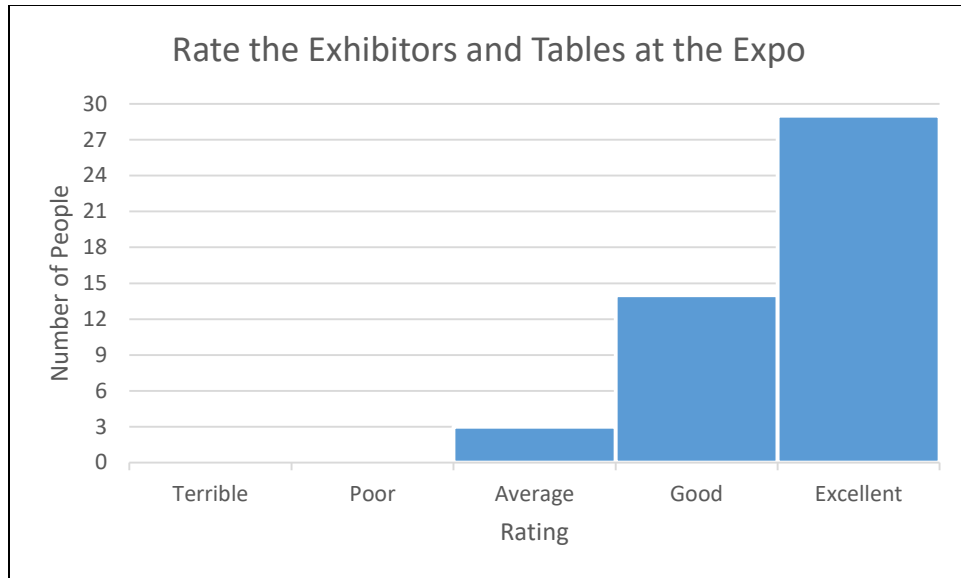


Figure 31: "Rate the Exhibitors and Tables at the Expo?" in the Attendee Exit Survey



Figure 32: "Rate the Refreshments at the Expo?" in the Attendee Exit Survey



Figure 33: "Rate the Organization of the Expo?" in the Attendee Exit Survey

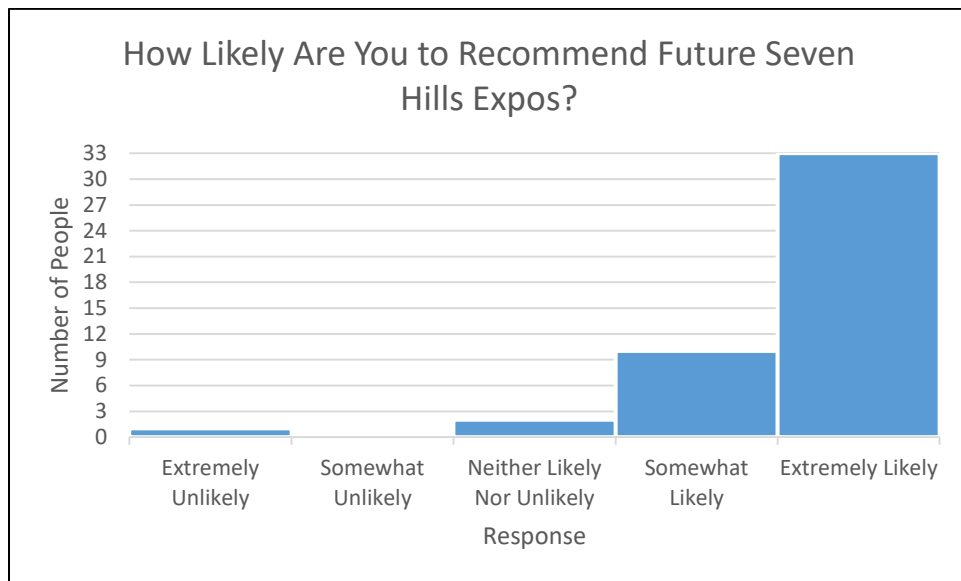


Figure 34: "How Likely Are You to Recommend Future Seven Hills Expos?" in the Attendee Exit Survey

Table 3: Open Response Results of Attendee/Volunteer Exit Survey

What did you like most about the Expo?	What did you like least about the Expo?	Any comments or suggestions?
The demonstrations of all the possibilities that technology allows. So many new needs are being met, by all this new and creative technology.	I had to come early, and couldn't stay that long, and there were a few tables that were no set up yet.	Keep up the good work!

Everything!	nothing	Thanks for holding this--it should continue to be an annual event!
Variety	No speakers	keep the leading vendors like Microsoft and apple engaged
I was very impressed with the diversity of, as well as number of vendors	tables without people to talk to OR without product to see/feel/experience	Well rounded group of products. I found some products that my wife and I and our behaviorist will be looking very closely at to use in helping our son learn new skills
tables with items to look at and experience	Nothing really to complain about	Thank you!
The vendors were great	not much--liked it.	Keep up the great work!
Microsoft	N/A	Some kind of plastic or paper bag given at beginning to carry all items around in.
The breadth of the vendors and technology available.	Parking	more food
iPad applications	?	Maybe have more information on the vendors beforehand. Also maybe some more presentations by the vendors
information provided	no food	great chance to see so many things that staff can use to help the clients
Unique products that can be used to help teach my son with autism new skills	There could have been better vendors and more	I liked all of it.
Meeting with the rep from Tobii Dynavox	nothing	Thank you for info
The variety of vendors	food	I suggest binging in some robots to make this interesting.
demos	It would be nice to see Seven Hills art program have a table that sells some of their work.	Nice job!!
speech output	the booth of Clark University	keep it up its helpful
The raffles are a great way to keep attendees engaged	nothing	Need assistive technology for individuals with moderate to severe intellectual and physical disabilities.
the information	I like everything	Maybe play some light music in the background!!
Lots of different types of information.	none to note	Maybe having music to make it more inviting
vendors	nothing	
the variety of vendors at the expo	walking around	
I liked the variety of vendors.	n/a	
the table of low tech assistant	nothing, I love it!	

Getting a bag from a table	Rain!	
playing the Xbox	different ways to make life easier for our individuals	
Getting a bag	distance	
the Xbox	Many items not appropriate for use at the day hab programs	
all of the different resources that I need for the individuals that I supervise	Nothing	
that it was at seven hills	Limited music	
Seeing potential opportunities for my residents	It was raining	
I liked all the vendors present, they were all very passionate and informative		
Hard about new technology		
it's good and had helpful information		
info		
parts of the body you can move as a mouse on the computer.		
The student organizers!		
interesting a lot out there that we don't know about		
Seeing the equipment and available items and getting to use them first hand		
A variety of adaptive technology devices		
Very well organized, and it was spaced out very well.		
I enjoyed the variety of vendors present		
Great Variety of technologies		
Microsoft		

Exhibitor Results:

Table 4: Open Response Results of Exhibitor Exit Survey

<i>What did you like about the expo?</i>	<i>What did you dislike about the expo?</i>	<i>What additional prior information could have prepared you for the expo?</i>	<i>Any comments or suggestions?</i>
Great way to introduce people to tech	What did you dislike about the Expo?	Nothing I can think of	No
Great setup, check in process. Great target participation from clients and providers	Parking	Nothing, great expo, great administration, very impressed with student volunteers	great programs

connecting with consumers and sharing information with others about our program	Setup period probably longer than it needed to be. By lunchtime, traffic at booths had dwindled	Nothing!	maybe a brochure of who/what is here (you could also use this as advertising potential)
well run	A little too long and wish where more attendees	level of clinician participation	Give Sofia & James, in fact the whole staff, a raise & a higher grade!
the interactions with all the participates and attendees	small clinician presence	you need to have clinicians at this show. Your attendees is not what we were promised. We were told clinicians were going to attend.	List of attendees
Steady flow of people, genuinely interested. Good time frame	Nothing	Nothing	it was done very well
Sofia & James	a vendor list, etc. of who is here	not sure. felt prepared	Maybe a short chance for each vendor to state something about their products to the general audience
Great mix of individuals, family members and human service	Nothing	N/A	Have dedicated exhibit time
Networking with other vendors, meeting caregivers/professionals	lack of parking	attendance numbers	none
good presence in the morning, but maybe end after lunch	nothing	list of attendees that registered	Overall, it was a great expo. Thank you for hosting
Well organized and thorough instructions	should make shorten hours- decreased participants after noon	all prior information was great	no
How nice everyone was	nothing - very well done. Again, maybe end after lunch.	who the expected participants were going to be	no
Both professionals and families/clients attended. It was free for exhibitors.	Nothing	nothing - enjoyed it	nope - great work!
exhibits	Not enough attendees	Nothing	
Great setting and volunteers!	Nothing	You did very well.	
	lack of parking	Maybe more info about other participants	
	n/a	nothing	

	Nothing	n/a	
		Prior information was great!	