Understanding Consumer Needs Through Market Research

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Abstract: The purpose of this article is to demonstrate how existing market research in the assistive technology (AT) field can be leveraged to create new solutions and to help those solutions reach wider markets. To do so, we discuss market research projects, focusing on seminal activities that have occurred in the assistive and learning technology field; present a collaborative market research activity involving the National Center for Technology Innovation and AbleNet®, Inc.; and offer suggestions for how an organization with little or no experience with market research can initiate such activities. As demonstrated in this article, findings deriving from market research activities can be used to benefit individual corporations responsible for conducting market research as well as the broader AT community.

Key Words: Market research, Collaboration, Assistive technology

Introduction

Market research is a critical component of conducting business in today's competitive environment. Information gathered from market research informs organizations of consumers' needs and expectations, which will, in turn, guide how businesses develop and market their products. This is especially important within the field of assistive technology (AT), given that many consumers have unique needs that may not necessarily be addressed by mainstream products or even those with a universal design. Collecting and integrating independent and objective market research as part of business practice is a recipe for success. The purpose of this article is to show how existing market research can be leveraged to create new solutions and to help those solutions reach wider markets. To do so, we discuss market research projects, focusing on seminal activities that have occurred in the AT and learning technology field; present a market research activity that was a collaboration between the National Center for Technology Innovation (NCTI) and AbleNet®, Inc. (hereafter referred to as AbleNet); and offer suggestions for how an organization with little or no experience with market research can initiate such activities.

An Overview of the Organizations

NCTI is a technical assistance center funded by the U.S. Department of Education, Office of Special Education Programs. The Center's mission is to advance learning opportunities for individuals with disabilities by fostering technology innovation. One approach for doing so is to enrich the field by generating knowledge through collaborative inquiry with technology professionals. AbleNet is an AT

corporation that offers a broad spectrum of technology and curricular solutions to meet the learning needs of individuals who have severe to moderate disabilities worldwide. In addition to the organization's corporate structure, AbleNet operates the Ablenet Research Consortium (ARC; AbleNet, n.d.), which aims to increase the scientifically based research available on AbleNet curriculum, professional development, and AT.

NCTI and AbleNet have worked together on a number of initiatives over the past several years, including panel presentations and discussions about the increased pressure for scientifically based research in the AT and educational technology markets. The collaboration described in this paper was staffed and funded by both entities.

Market Research in the AT Field

Grigoriou (2000) distinguishes between the two types of market research and provides insight that crosses industry boundaries to have widespread implications for almost any emerging business. *Primary research* is described as first-hand research to solve a particular problem or seize a particular opportunity. This form of research is conducted by the party that is in need of specific information. Organizations and entrepreneurs not having the capacity to conduct their own research can enlist the services of a third-party market research firm to do so (sample education market research firms are found in the Resources section). *Secondary research* consists of information that has already been gathered by a third party, but nevertheless can provide significant benefit to industry leaders when made publicly available. One can turn to the Forrester Research (2003) study, for example, for secondary research to understand the needs of technology consumers who have special needs. Microsoft® commissioned this external research organization to conduct a study exploring the number of individuals who could potentially benefit from the use of accessibility features. Findings from the study showed that a need existed for more awareness and promotion of accessibility features to enable users to overcome physical and cognitive challenges when using computers.

The results of this study had a wide reaching impact for Microsoft® as well as the AT industry. Steve Bauer, Director of Rehabilitation Engineering Research Center on Technology Transfer (T^2RER), told AbleNet:

> These studies will help Microsoft® to develop accessible operating systems and software applications for computer users aging into retirement. Today's workers are pervasive users of technology. However, as they age there is a normal diminishment of sensory, physical and cognitive abilities. Products that individuals take for granted before retirement may subsequently become unusable. Innovative new hardware and software products will be needed. Market studies help Microsoft better understand the needs and abilities of today's elders, and the product preferences and usage of today's workers. (personal communication, April 15, 2008)

The Microsoft® AT Vendor Program assists more than 100 AT manufacturers. The AT products developed through this program help to make Microsoft® operating systems and applications accessible to individuals with and aging into disabilities. Microsoft® and AT manufacturers in the Vendor Program each derive obvious benefits from the collaboration. As part of the Vendor Program, the Microsoft® Accessibility Developer Center offers guidance, essential information, and tools for developing accessible applications

and software code. Likewise, other major corporations such as IBM®, Apple®, and Intel® also have accessibility integration programs.

Unfortunately, the dearth of publicly available disability market data has historically led technology manufacturers to rely upon the experience and intuition of their colleagues to identify unmet needs and business opportunities. To help bridge this gap, T²RERC has undertaken a project to conduct primary and secondary research for five AT industries. Information from this project is being compiled into 'Industry Profiles' that are publicly available through the T²RERC website (T²RERC, n.d.). To date, two such profiles have been completed: *Industry Profile on Education Technology: Learning Disabilities Technologies and Markets* and *Industry Profile on Visual Impairment*. Industry Profiles serve as excellent sources of secondary research for AT developers, providing overviews of the respective populations, demographic background information, existing technology devices, and insight on legislation and funding. Useful primary market data is also contained within these documents--with sufficient specificity to help identify business opportunities but not to design products. It is always important to recognize that secondary research should complement, rather than replace, targeted primary research. The remainder of this article describes a collaborative primary research activity conducted by AbleNet and NCTI, along with suggestions for launching primary research activity.

AbleNet/NCTI Collaboration

The purpose of the AbleNet/NCTI market research activity was to examine the changing roles and perspectives of district-wide administrators as they relate to the purchase and utilization of AT for their student populations. AbleNet's interest in understanding the needs of administrators stems from the organization's desire to serve the entire district with solutions that could best bring about improved student performance for those who have severe and profound to moderate disabilities. By better understanding administrative needs, AbleNet will be positioned to create solutions that solve these customers' challenges. As AbleNet began to focus on district-level consumers, it became clear that it needed to understand the needs of these people who were involved in the decision-making process for acquiring AT at all levels of the district. Prior to this, AbleNet focused on delivering solutions to teachers, therapists, and families, who are more often looking for individual and classroom solutions.

During this time, the No Child Left Behind Act of 2001 (NCLB) was dictating a new focus on accountability. It was obvious to AbleNet that this focus on accountability would affect AT utilization, purchasing, training, and so forth at all levels of special education. Furthermore, it became evident that solutions that achieved and demonstrated results at all levels of the district would be critical to AbleNet's future success. Therefore, AbleNet needed to capture and understand needs, desires, concerns, and motivation of district-level administrators nationwide.

AbleNet took a market research approach to understanding how the industry would shift. The company decided to devote marketing time to listening to its customers. AbleNet devised a semi-structured interview protocol with open-ended questions designed to elicit administrators' perspectives on the role of AT in school and district-wide technology purchases and achievement goals. Senior management and sales representatives called on districts around the country to hold conversations with administrators in various levels and departments. Interviews were documented in field notes and then shared in

corporate meetings. The vocabulary and key concerns expressed in the interviews started to shape a corporate strategic response to the marketplace.

The learning was determined to be so powerful that the leadership felt compelled to find a way to share it with their AT colleagues. AbleNet approached NCTI to ask whether researchers at the Center could independently analyze the data and collaborate on sharing the findings. NCTI was enthusiastic about the potential of this rich data source to shed light on the changing needs of education administrators, the impact those needs have on special education, and the marketplace for AT companies. The Center agreed to analyze interview data and turn research findings into practitioner-friendly presentations and products to share widely with the researchers, developers, and entrepreneurs in the field.

The AbleNet/NCTI collaboration demonstrates how market research that has been traditionally reserved to inform corporations of their customers' expectations can be used to guide the field on the shifting needs of similar customer markets.

Doing the Research

AbleNet adopted an 'executive interview' model for conducting the basic research, based on the Delphi interview method (Linstone & Turnoff, 1975). The Delphi interview method represents an in-depth iterative research effort involving one-on-one executive interviews with a representative sample of experts or knowledgeable persons from selected target market businesses. In this case, AbleNet selected administrators from a variety of districts nationwide.

Four basic questions for the semi-structured interviews included: (a) What are your top three to five greatest needs today? (b) How do you think your superior would define his or her top three to five greatest needs today? (c) Why are these identified needs of such great importance? And (d) Have these needs shifted over the past 3 to 5 years?

Methods

Forty executive interviews were conducted between August, 2006, and November, 2007. A diverse pool of respondents was sought, representing various aspects of the body of potential purchasers at a district level. Potential respondents were identified through the existing AbleNet customer-base as well as cold-calling to districts that were not affiliated with AbleNet. The interviews were conducted with principals (5), superintendents (5), curriculum directors (5), special education directors (15), state-level AT leaders (3), and program directors (7). The interviews took place in person or on the phone and lasted 60–90 minutes. When possible, the interviews were held in the respondents' work environments. Respondents resided in Arizona, California, Florida, Kansas, Maryland Minnesota, North Carolina, New York, and Pennsylvania. Interviews were recorded through field notes taken by the AbleNet interviewers. Interviews were facilitated by AbleNet corporate executives, who have long been trained by third party market research companies on conducting effective market research strategies such as interviews, focus groups, and surveys. However, the project was initiated as a way to gauge current practices employed by a sampling of respondents representing education administrators who make purchasing decisions involving AT. Given this less formal approach, interviews were conducted with no mechanism to ascertain inter-interview reliability.

Upon completion of interviews, field notes were forwarded to two NCTI researchers. These notes were analyzed using Atlas.ti©, a qualitative data analysis software application

Table 1
Qualitative Data Analysis Software

Qualitative Data Analysis Software	
A number of software applications to support qualitative data analysis are commercially available. These applications enable users to identify, code, and annotate findings; determine the importance of data; and draw relationships between data within and across sources. Examples of qualitative data software include are included below.	
Software Title	**URL**
Atlas.ti©	http://www.atlasti.com/
NVivo©	http://www.qsrinternational.com/products_nvivo.aspx
HyperResearch©	http://www.researchware.com/

(Atals.ti Scientific Software Development, 2002-2008) (see Table 1 for more information on this type of analytic software). Notes were analyzed for key words and phrases that identified the most pressing issues relevant to administrators. These key issues were then interpreted by NCTI researchers in collaboration with AbleNet to determine how administrator data revealed challenges faced by vendors as they market their products to these practitioners. In doing so, NCTI compared data to its own ongoing study of trends in the field and dialogues with thought leaders and stakeholders. *The Moving Toward Solutions* report (NCTI, 2005) derived from a series of dialogue events in which NCTI asked key thought leaders from education and technology fields, "What will it take for assistive and learning technology to be considered a critical component of education to help more students learn, achieve, and reach their potential?" The report provides a framework within which to identify emerging trends and key areas for advancing technology as a solution in school improvement.

Findings

Five themes emerged from the interview data as key issues for administrators as they discussed technology purchasing decisions, including: (a) curriculum alignment, (b) implementation, (c) scientifically based research, (d) funding, and (e) legislative mandates. Each is explored in more detail below.

Curriculum alignment. Administrators demonstrated knowledge of aligning curriculum to state standards and expressed a strong interest in drawing links between curriculum materials and the standards on which students would be assessed. As expressed by one superintendent, "Everything must align with standards. AT will not be used unless this alignment is clearly understood." However, many of those interviewed were not as familiar with the plethora of technology devices on the market that could support this effort. Consequently, they were faced with making decisions about new and innovative technology that appeared appealing at the surface level. Nevertheless, in many cases, the relationship between the products' role within the curriculum and the connection to state standards was not made explicit by vendors. Without this critical piece of information, administrators expressed reluctance to invest in products without a clear understanding of how such devices would interface with the curriculum to help facilitate instruction aligned with state standards.

Implementation. Administrators expressed great interest in drawing on technology as a resource to help improve student performance and enhance instruction. Acquiring technologies with a universal design was of particular interest to meet the needs of a range of students. However, administrators found that, after investing significant financial resources in assistive and learning technologies that they believed would be

helpful, technology was not being utilized to the greatest extent possible.

This was largely due to teachers' lack of knowledge on how to implement technology in lessons to support teaching and learning. Administrators found that many times, technology purchases were made without an implementation plan or the support needed to ensure effective implementation in the learning environment. One special education director reported, "The biggest disappointment is investment in AT that never gets used."

Scientifically based research. NCLB mandates that instructional materials and tools should be supported by scientifically based research to prove what works. Administrators made several comments reflecting the importance of this requirement. For example, one county AT administrator stated, "[Technology] must be research-based for even classroom-level purchases. Some companies have gotten to be very good at presenting research first and then introducing curriculum, software, or AT in alignment with the research." In response, administrators frequently ask vendors to provide documentation of evidence to demonstrate the efficacy of product utilization. Although administrators inquired about scientifically based research, many acknowledged that they did not know how to identify and evaluate whether the research was appropriate to support their decisions. This is because many parallel organizations have different definitions of evidence-based research, and criteria to evaluate objective results vary.

Funding. Administrators reported that they experienced challenges financing technology due to changes in Medicare support and general budget cuts while meeting the ever-expanding needs of their student population. These expanding needs include English language learner students, students in need of

response to intervention services, and students on the autism spectrum, to name just a few. The Individuals with Disabilities Education Improvement Act of 2004 (IDEIA 2004) dictates that AT be considered and, if deemed necessary, provided for individuals when the need is identified in an individual education program (IEP). However, administrators expressed concerns about financial factors associated with these devices. For example, one state AT administrator reported, "[I'm] worried the perceived high cost of products gets in the way of viewing [AT] as a tool to be used in differentiated learning." Current funding realities encourage teams to identify technology solutions that are designed for use by multiple students whenever possible. Purchasers must make decisions for long-term value, so often a less-expensive 'one of a kind' solution may not be cost effective in the long run. The complexity of issues and needs has led to a complex purchase process as a result. Consequently, the number of school and district personnel involved in the technology acquisition process has increased to ensure that classroom as well as district needs are considered.

Legislative mandates. Overall, findings from the data demonstrate that NCLB has been the single most influential factor in creating the shift AbleNet identified initially: that more AT purchases are being made based on district-level technology considerations. For example, one special education director stated, "[I] am increasingly concerned with how the special education students are meeting general education requirements." Provisions found in the legislation, such as the requirement that purchases be supported by scientifically based research of effectiveness and the additional focus brought to the achievement of specific student populations, have had a profound effect on administrators' priorities and district purchasing policies. Administrators reported identifying and implementing instructional practices and curriculum materials based on

scientific evidence, increased attention to standardized testing to meet adequate yearly progress, and changing education practices to satisfy the requirements of both NCLB and IDEIA. To address the needs of NCLB, administrators have become more resourceful in how they utilize education materials. For example, educational materials with a universal design have become more appealing because they meet a broad range of needs for students with and without disabilities. This allows for cost-effective purchasing practices and helps align technology solutions with general education standards. Furthermore, in addition to relying on support from school professionals, administrators have high expectations for technology solutions to ensure the best educational opportunities for the students that they serve.

Outcomes and Benefits

As stated previously, AbleNet conducted market research to (a) enhance service to district-level administrators in order to support a broader segment of special education than the company had in the past; (b) increase product offerings that meet the needs of district administrators seeking district-wide solutions while continuing to support individuals on the educational team, and (c) determine whether the existing AT solutions that it offered met system-wide district-level needs. This section addresses how AbleNet's market research initiative informed each of these areas.

Broadening Marketing Efforts/Customer Base

For 15 years, AbleNet's primary clientele consisted of school-based educators and parents who made purchasing decisions based on the individual needs of students. However, with the centralization of purchasing decisions and other changing market trends, AbleNet realized there were new challenges for special education that could affect the organization's

marketing strategy. AbleNet specifically understood that administrators were going to be a bigger part of the purchasing decision and knew that it did not understand the needs of these administrators the way it had understood its core customer group. In an effort to help AbleNet better understand the needs and motivations of these individuals, plus factors that would influence purchasing decisions in their districts, AbleNet employed market research tactics. The results of the research produced key information that guided business practices that are used today. For example, one finding demonstrated that NCLB mandated that educational materials be supported by scientifically based research and mandated that they be aligned with state standards to help students meet their annual yearly progress requirements. AbleNet concluded that purchasing decisions would be made on being able deliver these standards of excellence. Although AbleNet was delivering some level of these standards at the time of the research, it felt it needed to move very quickly to bring all of its solutions into alignment with district-level needs. Therefore, AbleNet began to develop partnerships with general education solution providers who already had scientifically based research and offered products aligned with state standards. AbleNet knew it could trust the talent of its employees, who have many years of experience as educators in the field and years of work with top researchers, to be able to create and align other curriculum in addition to creating their own. The first effort to align current curriculum started with a partnership with *Weekly Reader* that allowed AbleNet to take the long-standing *Weekly Reader* curriculum and align/adapt it for students who have severe and profound to moderate disabilities. AbleNet provided additional strength to the programs by integrating proven teaching strategies and AT utilization so all students could participate. It is also actively seeking its own scientifically based evidence to be able to track its success with student performance over time.

Increasing Product Offerings for District Administrators

For AbleNet to continue to be considered a thought leader in the area of new products and solutions for the U.S. schools market, the organization needed the research conducted to guide research and development teams for both AT products as well as content for students with moderate to severe disabilities. The market research discussed in this article helped both AbleNet's research team and sales team better understand the needs of the district and what questions to ask to determine the most critical of issues and to ultimately work jointly to create solutions that would best serve the needs districts across the country. The findings led to a search for new curricula and technology so that AbleNet could create the type of solutions needed for these customers. Since conducting market research and applying the various findings to the direct sales channel, AbleNet has found strong receptivity to new solutions.

Determining Appropriateness of Existing Assistive Technology Solutions

General feedback from school-based clients suggested that AbleNet was providing many of the right solutions for classroom-level sales. However, the organization had limited details of how solutions met the needs of its district-level clients. AbleNet executives wanted to know whether the organization supported districts appropriately, whether it was targeting the right consumers, and whether the solutions that it offered were seen as top priority in the list of priorities that districts deal with. Findings from the market research demonstrated that AbleNet was missing certain pieces of the solution for clients at the district level. The organization learned that it needed ways to help districts support accountability efforts as they measured student performance. AbleNet also recognized that the organization had a gap in

solutions for secondary and transition students. As discussed previously, market research also revealed that AbleNet needed additional scientifically based research to support its products. As a result, AbleNet was able to adjust its product development and district development plans. In doing so, it developed the NEXT™ transition skills system (AbleNet Inc., 2007) to support secondary and transition students. NEXT™ was launched in January 2008 and specifically incorporated learning from the themes of alignment and legislative mandates. This transition skills system is a solution that simplifies the process of identifying, teaching, and tracking essential transition skills over multiple years, while meeting state standards and federal guidelines for providing transition education to students who have autism spectrum disorders and mild, moderate, and severe disabilities. In addition to partnering with other research-oriented organizations, AbleNet (n.d.) initiated the ARC to meet consumers' needs for products supported by scientifically based research. ARC offers a stipend and free product/curriculum for research efforts that are chosen by a team of internal and external reviewers based on a published set of criteria. In exchange for the research support, AbleNet expects the research team to seek publication of the results in a peer-reviewed journal. There is no corporate oversight over the publication of findings. AbleNet's goal is to learn from objective research so it can improve its solutions and utilize the results to help guide more effective implementation of its solutions with its customers worldwide.

As a result of market research, AbleNet is in a better position to meet the needs of district-level administrators by offering a more complete system of products that are research-based and aligned with state standards. This has led to a notable increase in sales. In addition to informing AbleNet's business practices, the research findings were

HELP!	GETTING STARTED	QUESTIONS TO ASK CLIENTS
Alignment I'm hearing from educators that they are under increasing pressure to align curriculum with state standards. How can I address the curricular standards of my clients?	• Assess your products to determine how they help students achieve the state standards/alternate standards in regions in which you do business. Consider explicit alignment with standards or other published core curricula as a database feature. • Clearly demonstrate/specify the links between your products and your clients' curriculum standards at all levels of the school/district. Administrators and teachers have very different information needs. • Publish information about the efficacy of your products on your company's Web site to demonstrate how particular products have successfully helped students meet standards.	• Which standards are most challenging for your students to meet? • What strategies have you implemented to help students meet these standards? What is working and what is not? • What features/benefits in technology products are you looking for to help your students meet standards? • Will you require ongoing support to help your staff understand how technology provides access to achieving the standards for specific students?
Implementation In follow-up conversations with clients, I'm learning that some clients do not integrate products into the classroom effectively. How can I help clients maximize my company's products?	• Make your clients' local education agency (LEA) assistive technology (AT) resource center aware that your company's products have been acquired by a school or district. Offer guidance for effective implementation. • Ensure that the LEA understands the needs that your products fill and knows how to get the best results with them. • Provide clients with case studies and multiple scenarios to demonstrate how your products have been appropriately integrated into the classroom setting.	• What type of individualized and group training has your staff received in the past? What approaches have been effective, and in which instances have you experienced challenges? • What type of support do you feel that you need to integrate our products into the classroom? • Does your LEA have designated staff to offer training and disseminate information throughout the district?
Scientifically Based Research Since the implementation of NCLB, I have noticed an increase in requests for scientifically based research (SBR) to support the efficacy of my company's products. Where can I find examples of SBR and what are some strategies for conducting SBR with our products?	• Refer to resources for guidance, such as the www.TechMatrix.com and journals including the Journal of Special Education Technology, Closing the Gap, Special Education Technology Practice, and Teaching Exceptional Children. • Partner with reputable researchers to design and execute studies to test the effectiveness of your products. Consider the NCTI Tech in the Works competition for support. • Engage potential clients in research activities to test your products' effectiveness.	• How is SBR used to inform your purchasing decisions? • In what format is SBR best received by you and your colleagues (journal articles, white papers, presentations)? • Would your district be willing to partner with our organization to engage in ongoing research activities? Note: It is critical for your organization to have qualified research capacity in place before partnering with schools or districts.

Figure 1. Excerpt of sample questions posed by educational technology vendors to support marketing of assistive and learning technologies. Source: National Center for Technology Innovation, Center for Implementing Technology in Education, and AbleNet, Inc. (n.d.a). *Consumer guide. Ed tech vendors.* Retrieved September 17, 2008, from http://www.techmatrix.org/consumerGuides.aspx. Used with permission.

used by NCTI as the foundation for creating products and presentations to spark further discussion in the AT field. Two products are described below.

Consumer Guide. A Consumer Guide (NCTI, Center for Implementing Technology in Education, and Ablenet, Inc., n.d.a, b) is a decision-support tool presented as a matrix of themes, advice, and questions to help facilitate appropriate and responsible technology marketing and purchasing decisions. This resource was created as a two-part document to speak to *both* school administrators and technology vendors. This design illustrates the parallel and shared vocabularies of these two target audiences and suggests bridges to

improved communication and collaboration. The *Consumer Guide* assures that the most appropriate information is gathered and utilized during the technology acquisition decision-making process for both the purchaser and the technology vendor. In doing so, the *Consumer Guide* helps facilitate a dialogue that addresses key issues that were identified through this collaboration. The guide is promoted through the following four Web sites: (a) hwww.NationalTechCenter.org, (b) www.TechMatrix.org, (c) www.AbleNetInc.com, and (d) www.CITEd.org. Excerpts from the Consumer Guide for School Administrators and Consumer Guide for Ed Tech Vendors are presented in Figures 1 and 2.

	HELP!	GETTING STARTED	QUESTIONS TO ASK VENDORS
Alignment	We are aligning our entire curriculum to the state standards. How can I determine which technology products will support these efforts?	• Ask the standards leaders in your state whether they have any guidance on aligning technology products and classroom curriculum. • Consult your curriculum coordinator for guidance on aligning standards to technology products. • Consult with colleagues about how they have aligned standards to particular products.	• Do you provide ongoing support in aligning products to curriculum standards? If so, what does this support consist of? • Can you provide me with references to clients who have aligned your product to curriculum standards? • Can you give me a specific list of the topics that your product addresses so that I can create the alignment to specific standards for my agency?
Implementation	With so many technologies on the market, selecting the right products and integrating them into the classroom can be a mystery. Plus, each time our department acquires new technologies, the staff needs to be trained.	• Contact your local education agency (LEA) assistive technology (AT) resource center for guidance. • Contact your LEA curriculum department for a list of technology products that address state and agency standards. • Request training from your LEA AT resource center to help teachers use devices and integrate them into the existing curriculum.	• What types of individualized and group training do you offer to help teachers and students use your products? • What types of support do you offer for integrating your products into the classroom? • Do you offer an extended support plan that will provide technical assistance to our school after the products have been purchased?
Scientifically Based Research	Because of NCLB, our district is emphasizing the need for products that are supported by scientifically based research (SBR). How can I ensure that legitimate SBR exists to support the efficacy of products that our district is interested in purchasing?	• Refer to technology-focused resources for guidance, such as www.TechMatrix.org and journals including Journal of Special Education Technology, Closing the Gap, Special Education Technology Practice, Teaching Exceptional Children, and ATIA Outcomes and Benefits Journal. • Refer to curriculum development resources for guidance, such as ACLD, subject area journals, and literature on differentiated instruction. • Make certain that the research you use to make decisions has been conducted by unbiased investigators. • Consider initiating or participating in studies that test a product's effectiveness.	• Can you provide SBR that supports the efficacy of your products? • Can you provide research that guides the implementation of your products to maximize student outcomes? • Who conducted the research to test your products? • In what setting was the research conducted? • Which journals have published findings about your products? • What current research activities are you engaged in and for what purpose regarding the technology we are considering?

Figure 2. Excerpt of sample questions posed to school administrators to support the purchase of assistive and learning technologies. Source: National Center for Technology Innovation, Center for Implementing Technology in Education, and AbleNet, Inc. (n.d.b). *Consumer guide. School Administrators*. Retrieved September 17, 2008, from http://www.techmatrix.org/consumerGuides.aspx. Used with permission.

Presentations. The AbleNet/NCTI collaboration also has resulted in several presentations at conferences where it is used to spark a dialogue among participants. Readers can experience one of these presentations in an archived Webinar (see Volkman & Overton, 2008). Sessions were hosted by the Center for Implementing Technology in Education (CITEd) and Don Johnston, Inc. In this session, the background questions, research methods, and key findings were shared and discussed with online participants.

Deepening the dialogue in the AT field about current realities at the district level as well as articulated concerns of administrators is critical for vendors and developers of technology tools to remain competitive and relevant. The *Consumer Guide* and live conference presentations can play a role in strengthening the utilization of technology as a solution for all students.

Implications for the Field

As described earlier, the AbleNet/NCTI collaboration provided AbleNet with useful insight on their effective corporate practices along with opportunities to better serve the needs of their existing and prospective clients. However, the implications from this collaboration reach beyond AbleNet and into the broader professional field. For example, the collaboration demonstrates how policy and legislative mandates have the potential to shift who the customers/purchasers are and then also influence the priorities that drive spending decisions. This suggests that it is prudent for the field to stay abreast of policy and legislative shifts to predict and explore the changing needs of their consumers. Furthermore, it implies that the industry would benefit from conducting studies to validate and monitor the shifts that are predicted. The project also shows that results from a market research initiative can have

practical application, as reflected through the *Consumer Guides*, Webinars, this article, and the development of NEXT™ transition skills system. The first three are made available for widespread use among the field to inform professional practices, while the later demonstrates how market research leads to product development. Finally, the AbleNet/NCTI partnership demonstrates how industry leaders can collaborate with other entities to inform their own professional practices, as well as those of industry leaders throughout the field.

Market Research Options

Conducting primary research has great promise for helping to best understand the needs and expectations of a manufacturer's target audience. Many well-established AT companies are experienced in market research, whereas younger companies may just be starting the process. The following section identifies options for those companies beginning the process of conducting market research and refining their business approaches as a result.

Identify missing information. Understanding what the manufacturer knows and what is needed to be known about the target audience is an important first step in conducting market research. Neglecting this initial step could result in duplicating efforts (that is, collecting information that already available) and overlooking information that is vital to product development and marketing.

Utilize secondary research. Manufacturers should draw on secondary research to establish information in the field that has already been uncovered. For example, T2RERC has released exhaustive market research reports addressing needs among users who have visual impairments and learning disabilities. Colleagues at other organizations or professional organizations

(e.g., Assistive Technology Industry Association) should be contacted to see whether they have market research available for public consumption.

Identify support for primary research. Financial constraints serve as a leading barrier to technology innovation. Many novice developers have innovative ideas but little capital to engage in research and development steps that are critical for successful technology innovation. Small Business Innovation Research (SBIR) Program grants, administered by the U.S. Small Business Administration, encourage commercialization to ensure that good ideas are brought to market, based on good research processes that are required in the proof of concept phase (Phase 1) of the grant.

Make use of low-cost Web tools. Manufacturers should consider low-cost media tools such as blogs, consumer forums, electronic surveys, and discussion boards to generate input from consumers in their target field. Web 2.0 features and capabilities are giving consumers a voice in product development and marketing strategies. By actively soliciting input through a company's own Web site as well as participating on public sites where consumers gather, allows the manufacturer to reach new audiences and build awareness of the potential of their products. Readers may examine more in *The Power of Social Media to Promote Assistive and Learning Technologies* (NCTI, 2008).

Develop a method to collect and analyze data. As discussed previously, Microsoft® enlisted an external research firm to conduct a study exploring the number of individuals who could potentially benefit from the use of AT. However, smaller organizations may lack the financial resources needed to enlist this type of support. In such instances, draw on references such as books, journal articles, market research organizations, and technical

Table 2
Education Market Research Resources

Education Market Research Resources		
Resource	**URL**	**Description**
America's Digital Schools, 2006	http://ads2006.net/ads2006/	This study explores the future of educational technology from the perspective of superintendents, curriculum directors, and technology directors. Key findings are available at no charge, and the full report may be ordered for a fee.
Education Market Research	http://www.ed-market.com	Education Market Research publishes market research data collected from original studies conducted by the organization. Areas include textbooks, supplemental materials, computer hardware, software, video, and online.
Education TURNKEY	http://www.edturnkey.com/	TURNKEY conducts niche market research in K–12 educational technology, specializing in special education, state technology grants, E-rate discounts and refunds, and other areas.
Grunwald Associates	http://www.grunwald.com	Grunwald Associates provides industry research on technology, children, families, and the education market.
Harvard Case Studies	http://www.hbsp.harvard.edu/hbsp/case_studies.jsp	Provides cases on best practices in research or on interviews; the cases are usually fairly inexpensive to purchase and can help you build a case or use examples.
Quirks	http://www.quirks.com/	This Web site helps users identify "research on research," best practices, and appropriate research methodologies. A free membership is offered, which includes a magazine and Webinars.
Survey Sampling	http://myssi.surveysampling.com/08/02/USEN/index.html	This resource offers sampling solutions, best practices, and trends.

assistance centers such as NCTI to develop an approach to collecting and analyzing primary data. A number of software applications to support qualitative data analysis are commercially available. These applications enable users to identify, code, and annotate findings; determine the importance of data; and draw relationships between data within and across sources (examples of qualitative data software are found in the Resources section). Once the manufacturer develops and implements a data collection and analysis plan, findings to support the business strategy may be utilized.

Limitations

The partnership between AbleNet and NCTI demonstrates how market research can be leveraged to create new solutions that reach broad markets. This initial collaborative effort was aimed to identify, formalize, and disseminate strategies to inform the field on leveraging market research. AbleNet and NCTI accomplished this through their collaboration; however, limitations existed within the process and should be acknowledged and considered during future endeavors. First, the initiative began as an information gathering process. No formal research design was established prior to the start of data collection, and NCTI entered

into this project with AbleNet after data were collected and ready for analysis. While interviewers were trained by third party market research companies on conducting effective market research interviews, interviews were conducted with no mechanism to ascertain inter-interview reliability. Furthermore, this endeavor differed from other traditional qualitative research approaches because during the data analysis phase, NCTI researchers contacted AbleNet staff involved with conducting interviews for clarification on the data (e.g., interpretation, context). Although findings from this project highlighted AT over educational and instructional technologies for learning, AbleNet's original purpose for conducting the research was broad enough to consider curriculum and professional services in the company's special education category. The findings shared in this paper should be seen as guideposts to further research and collaborative efforts that inform the field in an effort to better meet the needs of educational professionals and the students that they serve.

Conclusion

Market research has served as a valuable resource in understanding the needs, desires, and concerns of consumers and purchasers within the AT field. Although this important business strategy has been utilized in the AT field, opportunity exists to improve the gathering and use of market research to enhance the products and services offered to a changing and diverse set of customers worldwide. Drawing on secondary research (data that have been collected by a third party on consumers) is a good first step to getting a better understanding of a manufacturer's audience. Microsoft® and T2RERC have made market research reports available for broad use that serve as excellent starting points. However, this approach should be followed up with primary market research that is customized to provide specific insight on a

Table 3
Demographic Information Resources

Demographic Information Resources		
Title	**URL**	**Description**
Bureau of Labor Statistics	http://www.bls.gov	The Bureau of Labor Statistics is the principal fact-finding agency for the federal government in the broad field of labor economics and statistics.
Child Trends and Child Trends Data Bank	http://www.childtrendsdatabank.org	This site offers up-to-date national trends and research on more than 100 key indicators of child and youth well-being.
Disability Statistics: An Online Resource for U.S. Disability Statistics	http://www.disabilitystatistics.org	This site features disability statistics and related demographic information.
Twenty-Seventh Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act	http://www.ed.gov/about/reports/annual/osep/2005/parts-b-c/index.html	Report provides annual progress made toward the provision of a free appropriate public education to all children with disabilities and the provision of early intervention services to infants and toddlers with disabilities.
National Center for Education Statistics	http://nces.ed.gov	The National Center for Education Statistics (NCES) is the primary federal entity for collecting and analyzing data related to education.

company's client base. This article provided an example of one such market research activity involving a collaborative activity between AbleNet and NCTI. Additional resources on initial steps to conducting market research can be found in Tables 2 and 3.

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