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School Technology: Moving Beyond Assistive

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Abstract

There currently exists within the public education arena a background of political and educational change forces impacting and even threatening the role of educational organizations and services, including assistive technology supports. Issues specifically impacting the role of assistive technology personnel and departments within public education settings include the expanding and changing technology needs of students, the ubiquitous nature of technology now in most classrooms, definitional challenges to technology services, and changing educational initiatives. These factors, combined with the already tumultuous nature of public education and educational structures such as Educational Service Agencies, make it necessary to redefine the role of assistive technology in public education. Research into the changing role of assistive technology within public education structures reveals that there is a need to move assistive technology departments and services away from a focus on referral-based deficit models for individual student remediation to a framework that includes the roles of thought leaders, partners in programming, and experts in technology.

Keywords: assistive technology, educational service agencies, public education, role of assistive technology

Introduction

This article examines the roles assistive technology (AT) departments and services play within currently shifting public education environments. These roles are explored through the context of Educational Service Agencies (ESAs), such as special education cooperatives, in particular with correlation to all public education structures and settings. ESAs were originally designed to support special education populations in identified school districts. They were linked first to local and state identified needs related to special education populations, and later to state and federal mandates regarding the provision of special education services. AT services have formally been a part of the public education system in some manner since 1990 with the federal mandates of No Child Left Behind, and most ESAs have AT departments. While educational change forces and initiatives have been forcing change upon existing AT structures, this impact is felt even more dramatically within the arena of ESAs such as special education cooperatives. ESAs exist in a current educational environment where language around accountability and value-added services is beginning to mirror a business model with a focus on profit and customer satisfaction as much as an educational model with a focus on educating students. This business focus increases the need to sharpen the effectiveness of all departments, including AT. Emerging service models, blurring lines between assistive and instructional technology, and decreased reliance upon ESAs are some of the external forces impacting AT departments. This paper addresses the question: What is the role of assistive technology departments in public education structures such as ESAs?

Target Audience and Relevance

This work is relevant to administrators in all public education systems including ESAs as it provides a research-based framework for re-structuring AT departments and services to meet student needs in alignment with changing educational environments. It is also relevant to AT practitioners within all public education arenas as it clarifies the various change forces that are leading the way for new structures and new service delivery models. While there is a specific reference to the role of AT departments within ESAs, the information generalizes to all public education environments and structures.

Literature Review

Educational Service Agencies (ESAs)

States have a mixed history of proactive forward motion regarding education for students with special needs. While many early state mandates were not fully inclusive or well-funded, they did lead the way for progressive thought around education and special needs (Gittens, 1994). To fulfill the state mandates with limited funding, facilities, and personnel, school districts began to band together to share resources. Many of these groupings were state-designed and funded, but several individual groupings were also formed through joint agreements from invested school districts. Through the years, these sharing arrangements have become more and less formalized and have had a variety of structural and administrative arrangements. Stephens and Keane refer to these types of shared resources agreements

as Educational Service Agencies (ESAs) (2005).

This paper will continue to use the broader term of “ESA” with the understanding that the specific type of ESA discussed is a special education cooperative.

Stephens and Keane (2005) identify four stages ESAs have gone through since their inception, with the current or fourth stage of Restructuring marked by increased oversight and accountability. However, this author proposes that there currently exists within the educational and ESA environment a time of change that is significant enough to state that ESAs are not only approaching, but are securely within a fifth stage of development. The tumultuous nature of the educational and political environments in public education indicates that ESAs have moved far beyond the calm and deliberate stages of Restructuring. According to Harmon, Keane, Leddick, Stephens and Talbot (2012), ESAs are currently facing overwhelming challenges to their existence. Given this background, this author proposes that ESAs are in a developmental stage that calls for the need to evolve, rather than adapt (Restructure). While both words have a connotation of being new or different, it is evolution that depicts a forward trajectory – moving not only to a new form, but to one of advancement. It is further proposed that ESAs are in a position that is serious enough to label this fifth stage one of Evolution or Dissolution. This trajectory further increases the pressure on departments within ESAs, including AT departments, to change current practices. This significant period of change for ESAs is precipitated by the atmosphere of change that is mirrored within the general education arena. It is apparent that this potential final stage of ESAs is brought about in part by the changes facing all public education settings in general.

The intent of this paper is not to redesign the core functions of ESAs or public education, but to provide an understanding of the background and environmental considerations that are the formative features and current influences on ESAs and their services, specifically that of AT departments. AT departments and services are struggling to find their role in this arena of challenge, confusion, and turmoil around public education.

Assistive Technology

Assistive technology legislation initiated from the 1988 Technology-Related Assistance for Individuals with Disabilities Act, also known as the Tech Act (Public Law [PL] 100-407) (Bausch, Mittler, Hasselbring, & Cross, 2005). Interestingly, this legislation was not specific to public education but was intended for individuals of all ages in the general population. The Tech Act not only defined AT but also provided some funding for training, equipment, and services (University at Buffalo, 2005; Bausch, et. al., 2005). In 1998, the Tech Act was amended with the Assistive Technology Act, which further extended states' funding for AT. The language in this amendment was again specific to all Americans with disabilities, and not specific to the public school sector.

Special education law is rooted in the 1975 Education for All Handicapped Children Act (PL 94-142) which, when reauthorized in 1990, became the Individuals with Disabilities Education Act (IDEA) (PL 101-476). It is within IDEA that AT was federally mandated to become part of the special education system through the Individual Education Program (IEP) process. IDEA firmly placed the mandate of the

Tech Act in public schools. The 1997 IDEA amendment (PL 105-17) further defined and solidified AT as part of a free and appropriate public education (University at Buffalo, 2005). The amendment linked AT tightly to special education by requiring that AT be considered when a student's Individualized Education Program (IEP) is developed (Legal Information Institute, 1992). The services captured in the mandate included student evaluation, equipment procurement and maintenance, teaming, and training students, families and professionals (Legal Information Institute, 1992).

It is important to understand this background of legal language defining AT in the educational system as we move toward understanding the confusion inherent in the changing roles and blurred lines around AT in public education. The factors impacting the role of AT service and support in education include the expanding and changing student population receiving AT services, the increasingly ubiquitous nature of technology in classrooms, challenges to the definition of what constitutes AT, and changing educational initiatives.

Expanding student population receiving AT services. A particular challenge to the clarity around the definition of AT and AT services resides in the evolving student body receiving AT services. At the inception of AT services in schools, many students receiving services were categorized as students with "low incidence" disabilities, comprising a small percentage of the student population and having moderate or severe needs (Edyburn, 2000). ESAs and their service departments were initially formed to meet the higher needs in this student population. In recent years, a different and growing population of students has been identified as potential AT users. This group of students, categorized as students with “high incidence” disabilities comprises a larger percentage of district students and has mild to moderate disabilities.

This expanding and changing student population challenges the perception of what constitutes AT devices and challenges the model for providing AT supports and services. AT devices are most commonly thought of as some type of computer or electronic device. For students with moderate to severe disabilities, that might be closer to actuality. However, for students with mild disabilities, the true range and definition of AT devices is much wider. AT devices exist upon a continuum of low to high technology and encompass items from the low end of the technology continuum such as pencil grips or slant boards to more complex high end technology items such as eye gaze technology (Reed, 2004). Districts and AT personnel who are not cognizant with the entire scope of AT struggle to meet the demands of this larger population. They often look to a smaller solution pool or provide higher levels of technology than is needed. This over-matching of technology to needs leads to increased costs to districts and can limit student independence if technology over-provides support.

To meet the needs of students with more moderate to severe disabilities staff were required to understand significant physical complications and their impacts upon learning, and also understand the then novel technology solutions. The knowledge base needed was so deep and broad that it was difficult to transfer to others. AT service was provided to these students using the expert model, where the AT experts enter into the environment, evaluate the student, determine the best technology to support needs, implement the technology and move on to the next student needing expert support. Edyburn (2000) states that this

traditional expert model of completing in-depth evaluations and providing AT support cannot be scaled up to meet the needs of the larger high incidence student population. Therefore, a new service delivery model is needed to provide high quality AT service to this expanding student group.

The ubiquitous nature of technology in classrooms. Harmon et. al, (2012) note that the increased prevalence of technology has contributed to the turbulence that ESAs face in their bid to survive and compete. The availability of free electronic content, the on-line service delivery model that negates the need for face-to-face service delivery, and the erasure of geographic boundaries for service are some aspects of technology that challenge the existence of ESAs and also challenge the role of AT departments. Free online content helps widen the field of expertise so anyone can become educated to some level of competency with AT. Online content has also been instrumental in removing the novelty from AT and removing the idea that AT service provision is the sole domain of identified experts. The decreased reliance upon geographic boundaries for service provision increases competition for AT departments whose services are often defined by these geographic school boundaries. AT expertise can now be provided by any knowledgeable individual with access to on-line service delivery systems.

Challenges to the definition of AT. The legal definition of AT has stood with few changes since 1988. AT is rooted in special education as a service to students who are identified as having a disability and an IEP or a 504 plan. State publications clearly make this link. The Illinois AT Guidance Manual states that "Assistive Technologies are a classification of technologies that are specific to individuals with disabilities" (Wojcik & Douglas, 2012, p. 5). The Montana Office of Public Instruction provides that "Assistive technology devices are any item, piece of equipment, or product system (software) used to increase, maintain, or improve the functional capabilities of a student with disabilities" (Montana Office of Public Instruction, 2004, p. 7). South Carolina also follows suit with the statement "Assistive technology is any tool that helps students with disabilities do things more quickly or easily or independently" (South Carolina Assistive Technology Program, 2015, p. 1). However, many recent educational initiatives are using technology previously considered to be “assistive” to serve all students.

This new look at technology use has prompted more focus on the difference between AT and instructional technology, as well as the role of the AT professional in serving students. The definitions are further complicated because the same tool can be used as instructive or assistive technology depending upon the student, the identified educational need, and the outcome of the tool upon student performance (Stroud, 2010; Edyburn, 2000). This requires a level of subtlety in linguistic understanding when classifying technology as assistive or instructional, a subtlety in language that may not be readily available to educators not immersed in the field of technology or special education. It is the measure of performance that moves the ubiquitous classroom instructional technology into the realm of assistive technology. Edyburn (2000) states, "When the focus shifts from teaching the skill to emphasizing a functional outcome (performance), the use of technology changes from instructional to assistive" (p. 12). While the subtlety of these definitions can be demonstrated for every piece of technology and with every student's performance both with and without that technology, there are barriers to clarity. First, there is little specific research regarding the efficacy of AT to improve student performance (Parette, Peterson-Karlan, Smith, Gray, & Silver-Pacuilla, 2006). Further, given ever-increasing demands on teachers' time

and expertise, there is limited time for individual student and technology scrutiny in a classroom to make the determination around instructional versus assistive for classroom technology.

If the lines between assistive and instructional technology are blurred and there remains limited time, research, or inclination to clearly delineate the definitions in classrooms, why is there a need to provide this clarity? The need is reflected in the link between AT and students with disabilities. If instructional technology crosses into assistive technology and students who are depending upon classroom technology for successful performance do not have a designation under special education, they can lose access to technology when policy or classroom procedures change. Assistive technology remains legally tied to Free and Appropriate Public Education (FAPE) mandates and requires consideration in the accommodation section of IEP paperwork; instructional technology is not tied to federal mandates, nor is it required as part of classroom or educational support.

From the standpoint of evaluating service delivery by AT departments, this is not just a question of semantics. AT personnel find their roles changing in response to new definitions. They are often faced with the dilemma of remaining as AT service and support personnel or expanding their roles to include the larger responsibilities of curriculum planning and lesson development with the inclusion of technology. This happens as districts link AT specialists with all technology and request their service on this larger instructional scale.

Changing educational initiatives. Educational initiatives are ever changing and expanding. This also blurs the lines between instructional and assistive technology. Some of these initiatives include universal design for learning (UDL), differentiated instruction, and response to intervention (RtI) (more commonly known as a type of multi-tiered levels of support). The definitions and distinctions have a level of subtlety. Wojcik and Douglas (2012) state that UDL is a means of "reducing barriers that prohibit student learning" while AT "allows individual students to overcome those barriers presented by curricular tasks" (p. 13). UDL is a proactive classroom strategy while AT is an individual student-based response to performance difficulties. The distinction between differentiated instruction and AT is similar. Differentiated instruction is planned proactively to meet individual students' learning needs whereas AT is a reactive approach based upon levels of performance (Wojcik & Douglas, 2012). The relationship between RtI and AT is complicated. Documentation in the Illinois Assistive Technology Guidance Manual is nebulous (Wojcik & Douglas, 2012). It states that technology can be used in the tiers of support but that if technology "significantly alters the way the intervention is implemented, the effectiveness and fidelity of the intervention may also be altered" (Wojcik & Douglas, 2012, p. 14). The manual does advocate including AT tools to support students with disabilities under the RtI framework. However, RtI is a general education initiative and there is no specific language around technology use that might increase performance of students without an identified educational disability.

Expanding and varying student needs, the ubiquitous nature of technology in classrooms, and changing educational initiatives have combined within the already tumultuous public education environment to challenge the role of AT departments. It has become necessary to redesign this role in alignment with

current needs. This research attempts to provide a framework for this by addressing the question: What is the role of AT departments in public education structures such as ESAs?

Method

The authors used a mixed quantitative and qualitative survey instrument to gather data from member districts of an ESA regarding use and perceived benefit of the ESA's assistive technology department and to solicit feedback on potential new programming and services. The ESA is located in a mid- to high-socioeconomic suburban area in the Midwest and serves 18 member districts. The research data was obtained from these member districts as well as the internal ESA AT staff. Quantitative data from the ESA's historical service data was used to analyze service trends by type of service and by professional category (Occupational Therapy [OT], Physical Therapy [PT], Speech and Language Pathologist [SLP], and Educator). Grounded theory was used to help structure the complex environmental contexts that form the background canvas of this question including life stages of ESAs and public education change forces.

Outcomes and Benefits

Service Professional and Service Category Data

The ESA AT service category records and service hours for a five-year period were examined for trends. Service categories are the type of services requested by ESA member districts and were used to examine and predict trends around member district service needs and use, overall trends around fee for service hours and fee for service hours per request type, and professional provider category (e.g., OT, PT, SLP, and Educator).

On Going Support refers to services requested/provided to support a student past the initial evaluation, trial, and implementation stages and is typically tied to IEP service minutes. AT Assessment refers to a formal student evaluation related to AT, including opening student domain paperwork, gaining parent permission, and formalizing results in an IEP document. AT Consultation refers to a request for an AT staff member to consult with a teacher or team around problem-solving general student support related to technology. AT Trials refer to service that begins after an evaluation has been completed and technology support needs have been identified. The team and AT staff engage in trials to identify specific tools to meet the student support needs. AT Training refers to requests for AT staff to provide specific professional development sessions within member districts. AAC Problem Solving refers to requests for AT staff to help district teams problem-solve specific situations related to augmentative and alternative communication (AAC) devices. Table 1 depicts service hours per professional service provider and service category provided to ESA member districts.

Table 1: Service History Hours by Provider Profession and Service Category

		2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	Total
OT	On Going Support	197.7	192.1	363.7	319.6	110.5	1183.6
	AT Assessment	103.4	147.4	397.4	218.8	110.5	977.5
	AT Consultation	38	67.3	45.5	48.6	55.1	254.5
	AT Trials	84.8	27.4	0	0	0	112.2
	TOTAL SERVICE	**423.9**	**434.2**	**806.6**	**587**	**276.1**	
Educator	On Going Support	0.2	46.6	52.8	19	0	118.6
	AT Assessment	188.2	288.4	494.2	306.5	9.8	1287.1
	AT Consultation	14.8	120.6	88.8	100.9	13.6	338.7
	AT Trials	67.3	232.5	0	0	21.8	321.6
	AT Training	122.1	13.7	0	0	0	135.8
	TOTAL SERVICE	**392.6**	**701.8**	**635.8**	**426.4**	**45.2**	
PT	On Going Support	260.5	88.7	106.1	157.8	118	731.1
	AT Assessment	27.3	91	52.1	0	0	170.4
	AT Consultation	37.2	3.3	1.2	0	0	41.7
	AT Trials	0	0	0	0	0	0
	AT Training	0	0	0	0	0	0
	TOTAL SERVICE	**325**	**183**	**159.4**	**157.8**	**118**	
SLP	On Going Support	327.5	127	195.8	236.2	50.5	937
	AT Assessment	135.3	368.3	281.6	470.1	38.2	1293.5
	AT Consultation	64.8	7.9	59	59.3	0	191
	AT Trials AAC/Problem	18.8	0	0	0	3.3	22.1
	Solve	390.4	122.3	0	0	0	512.7
	TOTAL SERVICE	**936.8**	**625.5**	**536.4**	**765.6**	**92**	

Historical service data show that while almost all AT service categories trend downward, AT Consultation and AT Assessment show slight upward trending for the OT profession, and AT Consultation trends neutral for the Educator profession. In addition, AT Assessment and AT Consultation show only slight downward trending for the SLP profession. This trend may indicate that member districts still value AT Consultation and AT Assessment services, although they may be meeting some of these high-incidence needs in-house and using the ESA AT department for the more involved student cases (low incidence). This pattern has implications for future AT roles in increasing support to the high incidence population.

Given general trends toward increasing use of instructional technology, it is interesting that the AT Educator professional category has a sharp decline in service provision. This may be because the trend toward instructional technology coaching is still developing and not yet reflected in the data. It may also be because educators are ubiquitous in school districts and thus more used for in-house capacity around instructional technology needs versus out-sourcing these needs to the ESA AT department.

Survey Data

The author sent surveys to stakeholder groups to explore the perceived benefits of current ESA AT

department services. Qualitative follow-up questions sought information regarding the perceived role of the ESA AT department and the perceived areas of need or challenge for the ESA AT department. External stakeholders included the special education directors (SPED) in member districts, member district non-SPED administrators, and member district end users of ESA AT services. Internal stakeholders included ESA AT department members.

Member district SPED administrators are ultimately the ESA's identified customers because they are responsible for district budget categories that include related services. They have the decision-making power on a large scale for ESA services. Their view is typically broader in scope and focuses on the overall philosophy of service, including decisions to build staff capacity, to move from an expert to a coaching service model, and/or to hire in-house AT service providers versus hiring services from the ESA. While their view is broader, their experience is often somewhat removed from the actual service provided and the student-AT service interaction. Eighteen surveys were sent to this group (one to the SPED in each member district) and 11 surveys were returned (61%).

The member district non-SPED administrator category captures several district-specific titles. These are the special education administrators who typically have direct oversight of related service providers and manage individual student IEP processes. They bridge the gap between the administrative big picture view and direct involvement in daily student programming and district staff support. These are typically the administrators with whom AT team members have the most direct contact. Twenty surveys were sent to this group and five were returned (25%).

ESA member district end users surveyed consisted of teachers, school psychologists and technology specialists who had worked with the ESA AT department concerning students and referrals. These are district staff with the most direct experience with the ESA AT department members and the most experience with the available service provision offered by the ESA. Their involvement is closely linked with actual service provision and less linked to budgetary aspects. Fifty-four surveys were sent to this group and 13 were returned (24%).

The internal stakeholder group, the ESA AT department, was also surveyed. This group has significant insight into the needs of the various member districts at each stakeholder level. Seven surveys were sent to this group (one to each AT staff member) and five were returned (71%).

Quantitative Survey Data: Comparisons Across Stakeholder Groups

In general, all stakeholder groups perceive the majority of services offered by the ESA AT department to be very or somewhat beneficial (over 50%). If the two categories (very and somewhat beneficial) are separated, the results change. District SPED administrators perceive only wheelchair/mobility evaluations (87.5%) and equipment loans/training (76.9%) very beneficial at over 50%. Over 50% of district non-SPED administrators perceived all AT services as very beneficial except consultation to staff around technology in general (20%) and technology networking groups (20%). Over 50% of district end users perceived all AT services as very beneficial except technology networking groups (23.1%). The perception of benefit of services lowers the further it moves away from the end users. District SPED

administrators have a lower perceived benefit of AT department services than do other district groups.

Important contrasting data exist among stakeholder groups. District SPED administrators perceive limited benefits to consultation to staff around technology in general, but non-SPED administrators and district end users perceive this service as very beneficial (66.7%).

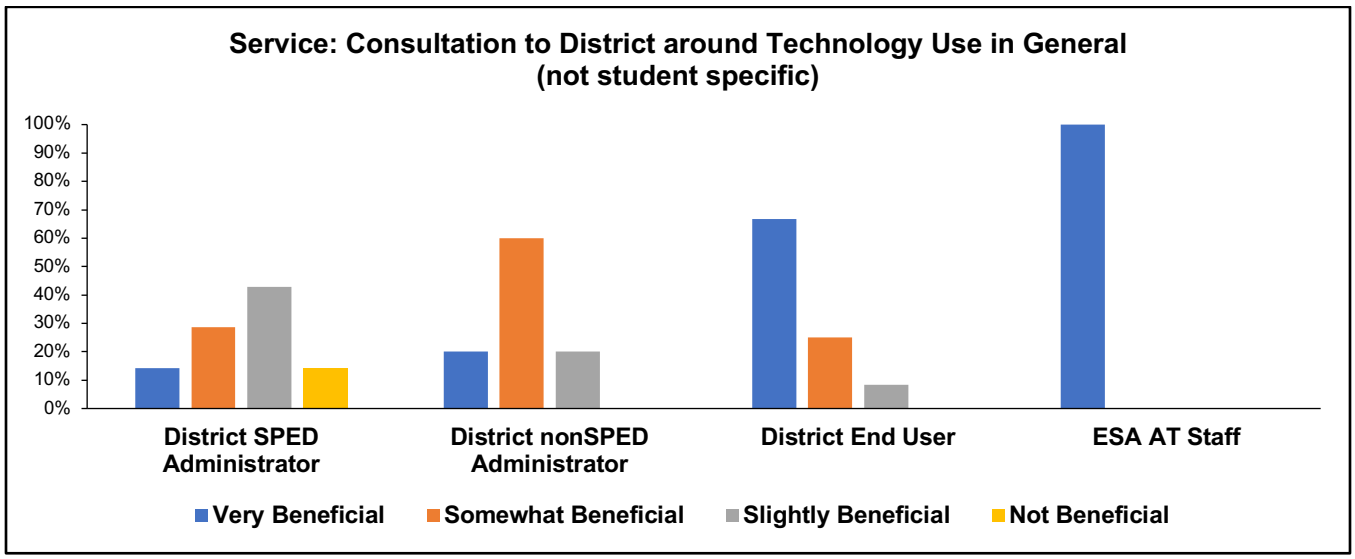

Figure 1: Consultation to District Around Technology Use in General

District SPED administrators place less benefit around on-going student support while non-SPED administrators and district end users rank this as one of highest perceived benefits (100% non-SPED administrators; 92.3% district staff).

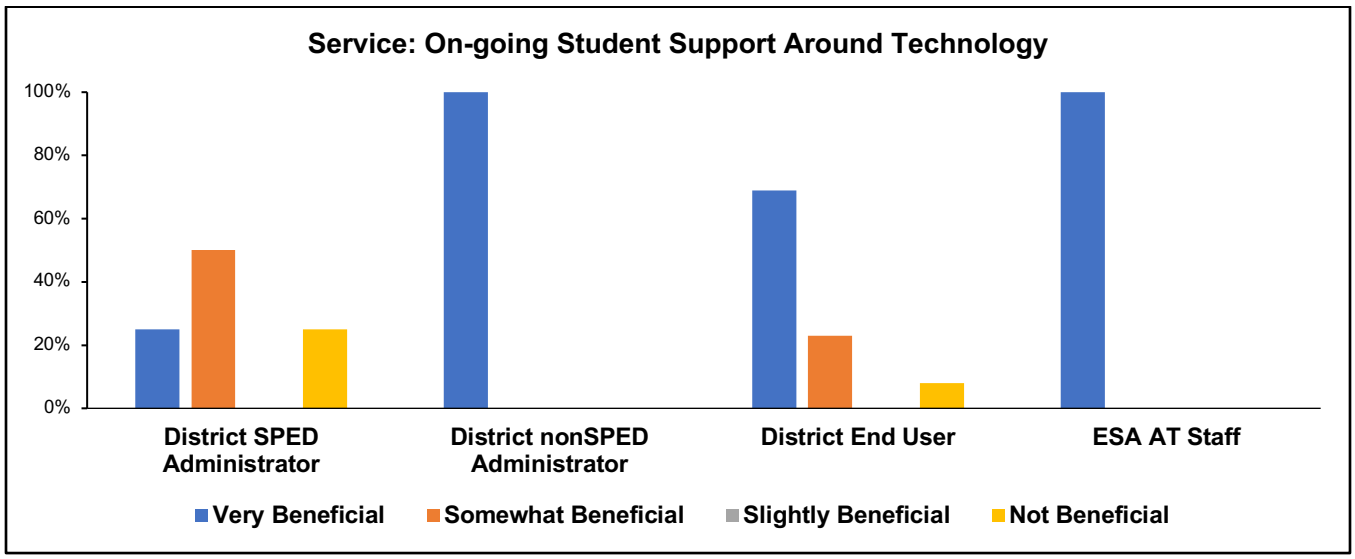

Figure 2: On-going Student Support Around Technology

Another contrasting category consists of coaching staff around student-related technology. District end

users perceive this to be very/somewhat beneficial at 100% (84.6% very beneficial; 15.4% somewhat beneficial) and 71.2% SPED administrators find this service to be very/somewhat beneficial (35.7% very beneficial; 35.7% somewhat beneficial).

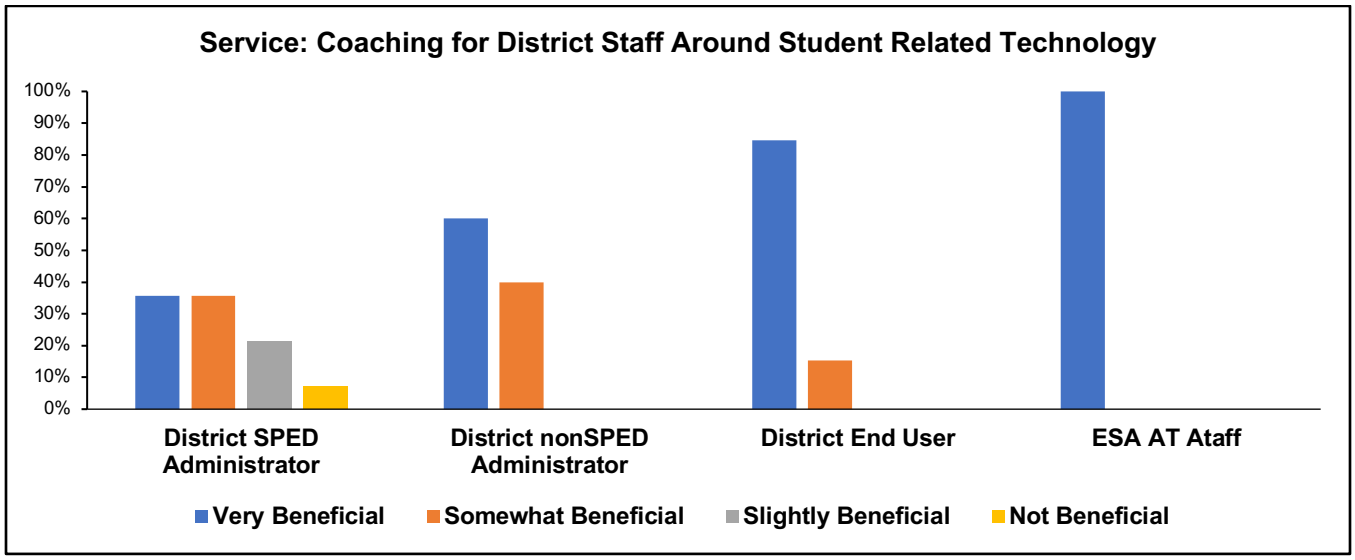

Figure 3: Coaching for District Staff Around Student Technology

There are also general contrasts in perceived benefits of AT department services between upper district administration and next level administration and end users. In general, district SPED administrators perceive services around professional development (PD) and low incidence services (i.e., wheelchair/mobility evaluations and equipment loans/training) as most beneficial services while non-SPED administrators find on-going student support most beneficial, and district end users find coaching around student-related technology most beneficial. These conflicting perceptions of benefit make it difficult to develop services that meet all stakeholder needs.

Qualitative Survey Data Results

The author coded qualitative survey responses by stakeholder group and across stakeholder groups to determine data patterns and similarities and contrasts among groups. A "Miscellaneous Responses" category was used for responses not common among stakeholder groups.

Table 2 depicts coded data responses from the question around perceived role of the ESA AT team in supporting individual districts. Stakeholder groups agree the ESA AT department should be experts in technology. This included responses around the AT team being able to provide highly customized strategies and supports for individual students, being experts about highly specialized technology, being updated in all and changing technology, and understanding the link between technology and education.

Table 2: What is Role of AT Department in Supporting Districts?

SPED Admin	Non-SPED Admin	District End Users	NSSED AT Team
Experts in AT	Experts in AT	Experts in AT	Experts in AT
Build Capacity	Build Capacity		
Low Incidence Support	Low Incidence Support		
On-going coach/consult		Coaching	Coaching
Wheelchair Mobility		Mobility	
PD/Networking	Train/Support Teachers	Train Students/Adults	PD
	AT Evaluations	AT Evaluations	AT Evaluations
Miscellaneous Responses			
Team Problem Solving		Loaning Equipment	Provide Range of Services
		Technology Assistance	Technology Implementation
		AT Written Language	

Table 3 depicts coded data for responses to the question around the ESA's role in supporting technology in general in member districts. Data showed agreement around providing PD/training around technology and some agreement that the ESA did not have a role in this area. Miscellaneous areas included ESA AT team responses.

Table 3: What is ESA's Role Around Technology in General in Supporting District?

SPED Admin	Non-SPED Admin	District End Users	NSSED AT Team
PD-Cutting Edge	PD	PD	PD/Training
None		None	
Miscellaneous Responses			
Group Purchases	Build In-house capacity	Expert in AT	Networks
Creative Problem Solving	Be Experts; Keep Current	Support Student Tech	Coach
			Coordinate
			Support Tech Coaches
			Support 1:1 Initiatives

Table 4 contains coded data responses for the question around other services ESA member districts thought might be beneficial (program expansion). The responses highlighted PD/training as an on-going need identified by all stakeholder groups and included PD for specific groups (e.g., administrators, specific teachers/districts) and PD tailored to specific technology (e.g., training around apps, training around technology on a global level, etc.) or PD in specific formats (e.g., on-line or on-demand learning).

Table 5 depicts coded responses to the question soliciting information as to where the ESA has failed to meet district needs and/or expectations around technology. The category of training was raised as a growth area. District non-SPED administrators proposed adapting PD offerings to better meet needs and ESA AT team members indicated a need to change and expand trainings/PD format and access. The ESA AT team responses identified service mistakes including the belief that the ESA was late in identifying the impact iPads would have in educational environments, missing the importance of coaching

in technology, and marketing coaching as a service option instead of the expert model. The ESA AT team also recognized limited follow up beyond AT evaluation and lack of on-going support to teams.

Table 4: What Other Technology-Related Services Should the AT Department Provide?

SPED Admin	Non-SPED Admin	District End Users	NSSED AT Team
PD	PD	PD	PD/Training
Nothing		None	
Hub: Link District Initiatives	Networking Groups		Coordinate/Network
Miscellaneous Responses			
Increased Collaboration Times	Follow-up: On-going support	Updated info/Apps	Marketing
Group Purchases	Build Capacity	Lending Library	Coaching
Parent Education			
Cloud-based Support			
Link NNSED and District Tech			

Table 5: Where Has the AT Department Missed the Mark in Meeting Districts' Needs?

SPED Admin	Non-SPED Admin	District End Users	NSSED AT Team
	No Concern	No Concern	
	Trainings		On Demand Training
			Administrator Training
		Coaching	Marketing Coaching
Miscellaneous Responses			
Evaluation Format		High Incidence Students	Experts in Tech (iPads)
Parent Involvement		Access to Professionals	On-going Student Support
Coach On-call vs. Fee-for -Service		Mapping Multiple Services	
Tiered Approach			

Discussion

A New Stage of Development for ESAs

Information was gathered and interpreted regarding the changing nature of ESAs as a specific aspect of public education environments. If ESAs are in a fifth and potential end stage of Evolution or Dissolution, the connection can be drawn that service departments within ESAs are also facing some aspect of this developmental stage, hinting at a potential for dissolution if structural service changes toward evolution are not made. If ESAs undergo a process of evolution, the role of AT departments within them will be impacted. The discussion of evolving states of ESAs and their service departments (AT) cannot be held in isolation. The factors impacting ESAs arise from and in turn impact the larger public education arena. Therefore, these research results are also applicable to AT departments outside ESA structures in public

education. The unique position of AT departments within ESAs means that they exist in the middle of changing internal and external environments.

The Role of Assistive Technology Departments in Public Education Structures

Literature review and research data indicate that the role of AT departments in public education structures such as ESAs is to support districts and end users through changing environmental and educational contexts by becoming thought leaders around all aspects of technology, being experts in technology from assessment to implementation to future trends, and by becoming partners with districts in programming and support related to technology.

Technology thought leaders. Assistive technology departments and staff must be leaders in identifying the impact to educational curriculum and planning that advances in technology pose. This thought leadership should go beyond simply identifying new trends and new technologies into the diagnostic aspect of understanding how the technology will impact all levels of educational programming. The nature of ESAs means that AT team members have daily exposure to and access to professionals in many districts and across numerous educational programs from self-contained classrooms to general education classrooms. They can synthesize experiences and education from multiple sources and bring this wealth of knowledge to the larger field of educational technology. This wide and constant exposure makes them well-placed to lead thought around the intersection and merging of education and technology across a broad range of educational environments.

Experts in technology. The role of experts in technology is similar to thought leadership in some ways, but diverges in depth and breadth of knowledge. The technology expert role is not the same as the expert model of service delivery. The technology expert role means that the members of AT departments are tasked with and uniquely suited to having a depth and breadth of knowledge around low-incidence technology (e.g., eye-gaze systems) and how to feature match the innumerable technology apps available in the marketplace to high incidence classroom support. Further, this technology expertise must be matched with extensive developmental and medical knowledge for the low-incidence student population and extensive educational programming knowledge to match technology to educational tasks. Skilled assessment, diagnostics, and technology support for high-incidence and low-incidence student populations is a necessity.

District partners in programming. AT departments and staff must broaden their role to inclusive partnering with districts, beyond services to specifically-identified students. Providing services on a student-by-student basis is not an efficient use of AT expertise and is not a feasible method of addressing the burgeoning high-incidence student population. As technology becomes more prevalent in districts, the support to students around technology is also expected to become more pervasive, requiring AT professionals to be accessible and to broaden their role to include instructional universal curricular design and technology support. This more accessible AT department role in supporting districts was seen in survey language including "Coach on-call," "team support," "build capacity," "on-going coaching," "consulting," "training teachers/staff," "curriculum specific support," "parent involvement," "high incidence," "access to AT professionals." Survey data indicates traditional services such as student-based services including AT assessments and on-going student support are no longer seen as the most

beneficial services. However, newer service models such as coaching and consultation are not fully yet accepted as alternative service models. This implies that AT departments and programs are on the cusp of a real and needed adaptation if not evolution.

By the layered nature of the organization, the roles identified for AT departments in ESAs are more complex than those within a single district. Meeting the needs of member districts of varying sizes, philosophies, and cultures while meeting the internal expectations of an evolving ESA can be challenging. It requires having a strong understanding of all change forces applied to all public education in general and being able to apply that knowledge in a forward-thinking manner to assistive technology services.

Future Programming

Given that the change forces impacting ESAs are in alignment with the change forces impacting public education in general, the programming implications resulting from this investigation are applicable to AT departments in all public education settings. Research and literature review results permit a programmatic design framework calling for planning implications in departmental structure and departmental services.

Departmental Structure

Flexible scheduling options that allow AT staff to expand their role of operation are needed. Engaging in proactive curricular design and expanded models of PD require staff time beyond student-by-student remediation. Budgetary constraints are often listed as main reasons for this structural restriction. However, this investigation indicates that providing this proactive support to staff and students is a more efficient structural model and is more aligned with current educational initiatives. Clarified roles and service definitions allow AT personnel to market and document their services and the increased impact of new service structures. Service marketing must be designed to increase administrator awareness of the full range of services offered. This marketing must include the value-added aspect of the AT departments inherent in district and/or ESA structures. Finally, it is necessary to hire and train personnel who are comfortable with a broad array of service provision models and are willing to move beyond the expert model of service provision.

Service Provision

Alternative service models that match district needs and that align with cutting edge best practices and new technology must be put in place. Assistive Technology departments must recognize the broader range of services now being considered under the AT umbrella (instructional support, technology coaching, etc.). Increased focus on types and formats of professional development and professional development offerings tailored to various and specific stakeholder groups must be provided. Assistive technology staff need to be versed in the subtle language that distinguishes service formats such as instructional versus assistive technology, and the scope of service must be broadened.

Once this broader service provision scope is provided, utilizing strong business and marketing principles will allow AT departments to disseminate knowledge and spur interest in the new face of technology that

is developed. Competing with new initiatives in districts can be difficult, and specific and tailored marketing efforts can capitalize on individualized district needs as well as individualized strategies developed to support these needs. Ultimately it is important to note that within ESAs as well as within other public education structures, those who have the authority to approve utilization of AT services are often the furthest removed from direct student services, and the data indicate that this removal from student service provision is linked with less satisfaction around offered services. Linking service provision to this level of administration will increase satisfaction and service usage.

Study Limitations

Several limitations are inherent in this investigation that can impact data interpretation. Due to the historical nature of service records, service categories were not well defined or documented, leading to a need to carefully interpret potential service trends by professional category. Survey data participation was limited in some stakeholder groups.

Member district non-SPED administrators and the member district end users had limited survey responses (25% non-SPED administrators; 24% end users). This may have been due to the fact that it was gathered in April, which tends to be a busy time in public schools. In addition, the high turnover rate at the non-SPED administrative level is a limitation as programming based upon responses garnered from these administrators may not have a service impact with new district administrators. Also, member district end users were not asked about coaching services to district technology leaders as they are not in a position to employ district leaders in coaching positions. In retrospect, it would have been appropriate to keep the survey consistent for all stakeholder groups as district staff may have valuable insight into this area.

Declarations

This content is solely the responsibility of the author(s) and does not necessarily represent the official views of ATIA. No financial disclosures and no non-financial disclosures were reported by the author(s) of this paper.

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