Technical Report - The Assistive Technology Infusion Project (ATIP) Database (Version 1.0)

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Summary

This report summarizes the outcomes information that can be gleaned from a database that was developed in the process of administering a large grant to infuse assistive technology into the Ohio public schools. The administration process was extensive, yielding a wealth of information. Because assistive technology outcomes were considered when designing the grant administration process, a number of data fields relate to the measurement of outcomes. Further analysis will be required to determine the information most salient to the measurement of outcomes. There are a number of features of this database that may contribute to the development of an outcome measurement system. Of particular interest is the incorporation of outcomes measurement into the service delivery and administration process; the successful use of online data collection; and the use of a tool for collecting information on the relative contribution of various interventions.

Rationale for Field Scan

The purpose of this report is to present an analysis of the database that has been developed through the administration of the Ohio Department of Education's Assistive Technology Infusion Project. The ATOMS (Assistive Technology Outcomes Measurement System) Project model (see Figure 1) will be used as a basis for the analysis, with attention paid to how the information gained through the administration of funds for assistive technology in Ohio public schools can best be used to inform the development of an outcome measurement system.
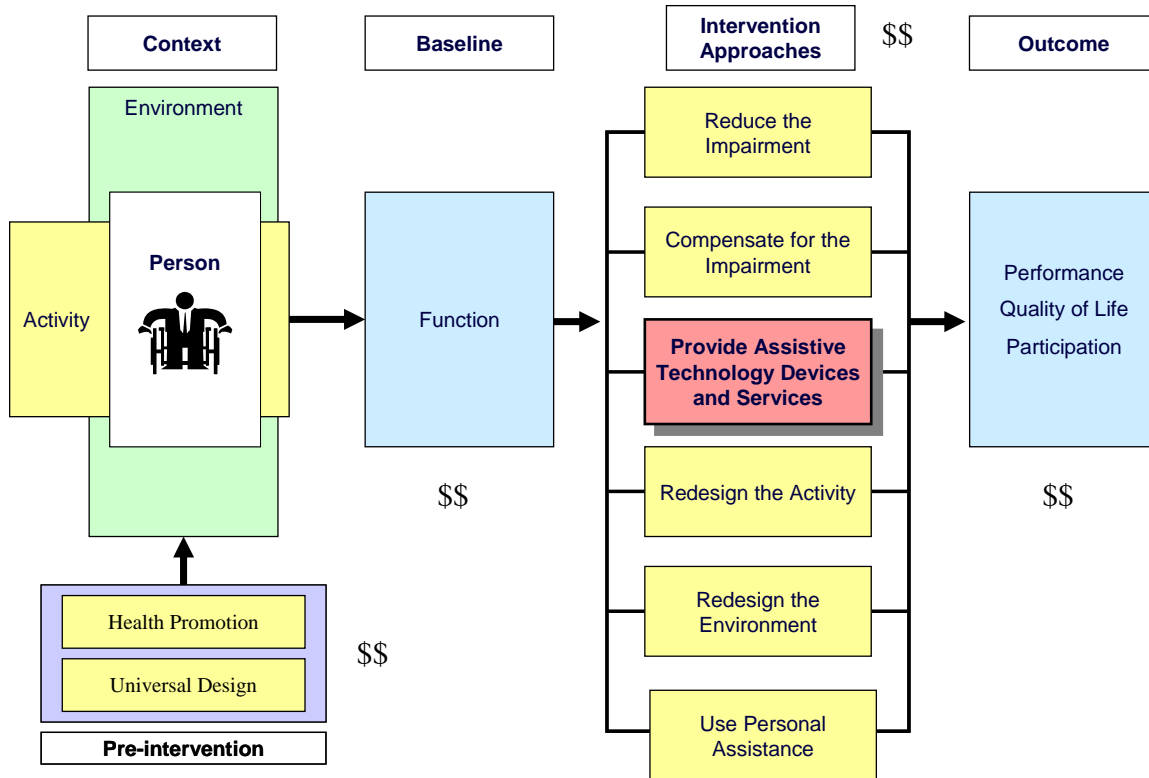
Figure 1: ATOMS Project model

Description of Scope of Scan

In June of 2001, the Ohio Department of Education received a 36 million-dollar federal grant from the United States Department of Education School Renovation, IDEA, and Technology Grants, of which 9.4 million was used to assist districts in providing assistive technology (AT) devices for students with disabilities. The Ohio Department of Education, Office for Exceptional Children (ODE-OEC) formed a management and implementation partnership with the Ohio SchoolNet Commission (OSNC) and ORCLISH for the distribution of assistive technology to school districts throughout Ohio. The Assistive Technology Infusion Project (ATIP) was developed to distribute and measure the outcomes of assistive technology to students with disabilities in the public schools of Ohio.

In the process of administering the funds to distribute the technology, a large amount of data was collected using a web-based interface. The data collection tools include 1) the ATIP Application; 2) the Assistive Technology District Profile; 3) the Student Performance Profile (Pre); and 4) the Student Performance Profile (Post). In addition, data is available on the scoring rubric that was used to judge each application that was submitted. It should be noted that if a team's application for funds was not approved, the only data collection tool available is the application. If an application was approved, the remaining three instruments were completed.

The administration of funds through the ATIP was completed in four rounds, with a total of 4,979 applications submitted and 3,479 grants for technology awarded for

individual students across 525 school districts. Because of the timelines for each round, those who received funds in round three and four have not yet completed the Student Performance Profile (Post) or the follow-up Assistive Technology District Profile.

A brief overview of the four tools used to collect data follows, highlighting information that is particularly relevant to measuring outcomes of assistive technology. First, teams were required to complete an application requesting funding for assistive technology for an individual student. The application required teams to document the steps of the assessment process including identifying the critical area of needs, possible solutions, the results of a feature match process, and trials periods leading to the request for equipment and a plan for implementation. Second, when an applicant was awarded funding, a representative from the district completed an Assistive Technology District Profile. The profile provided a summary of assistive technology quality of services and the number of devices available within the district. Third, for each student receiving assistive technology devices through the grant, the team was required to complete a Student Performance Profile (Pre). The Student Performance Profile (SPP) focuses on the area of need addressed through the AT, the rate of progress toward goals, and the contribution that each of a variety of interventions is making toward student progress. Fourth, eight months to one year after receiving the assistive technology provided through the ATIP, teams completed the Student Performance Profile (Post), which includes information similar to the SPP-pre as well as additional outcomes related questions.

Data Collection Procedures

The availability of the database for analysis has resulted from a collaborative relationship between the Ohio ATIP administrators and ATOMS Project personnel. This report focuses on the potential use of the data for measuring outcomes. Analysis consisted of examining the data fields contained in the four instruments described above, and comparing them to the ATOMS model to determine the potential value of the available data for outcomes measurement.

Findings

A summary of the data related to the measurement of outcomes, from the four instruments described above, is presented in Appendix A. The table is organized according to the theoretical model used by the ATOMS Project to depict the relationship between important variables related to measuring outcomes. The four major components include the context (including information on the individual, the environment, and the tasks), the baseline function, the interventions, and the outcomes. A description of the model is provided in the Technical Report – Service Programs Database (Version 1.0) (see www.atoms.uwm.edu).

Context (Individual, Task, and Environment). When attempting to measure the outcomes of assistive technology devices and services, it is important to consider the context within which the measurement is attempted. In the ATOMS model, the examination of outcomes begins by looking at the individual, within an environment, with a task or tasks to complete.

Variables Related to the Individual. Smith (2002) recognized the need to identify the "ingo" variables when attempting to measure assistive technology outcomes. Those individual variables that have the potential to impact the outcome of the assistive technology as documented in the Ohio ATIP database are identified below.

Information about the student receiving the assistive technology was gathered, although, in order for the students to remain anonymous, identifying information was not collected. The student's gender, age, grade, and primary disability are included in the database.

The student's present level of performance was documented, including a summary of the student's abilities as they relate to educational and/or developmental performance. In addition, each team identified the techniques that were used to gather information on the student's present level of performance.

On the application, teams wrote a "statement of critical need" indicating the specific educational and/or developmental needs of the student.

On the Student Performance Profile, teams also selected the critical areas of need for which the assistive technology was provided. On this instrument, the teams selected from a list the student's top three critical areas of need related to the assistive technology that was requested.

Because the application required the teams to complete an assessment in order to determine the most appropriate assistive technology to meet the student's needs, the teams were required to use of feature match process. They discussed the features of device(s) that they requested in relation to the student's ability to use these features. By so doing, the teams provided additional information about the student who they identified as needing the technology.

Teams also reported the results of the trial periods that they completed with the student, providing another source of information about the student.

Variables Related to the Environment. Variables related to the environment in which the assistive technology devices are used is another "ingo" to consider when measuring assistive technology outcomes. This section will review the variables that are a part of the Ohio ATIP database relative to the environment.

On the application, teams identified the critical area of need for the student. In a text field, they identified the specific tasks that they expected the student to perform and the environments within which these tasks would take place.

Teams report past and current accommodations and modifications on the application, including information regarding how long the modifications have been in

place, and why they had or had not been effective. Insight into the context within which the student is functioning may be gained by examining this data.

When they completed the applications, teams described specific supports and services that the school district provided in the past or that were being proposed to support the student. The supports and services included such information as alternative funding sources, training, teacher planning time, repair, maintenance, and technical assistance.

Information was gathered on the location or setting in which special education services were provided, as well as on the composition of the team providing services to the student.

On the application, teams reported on district and building efforts to integrate assistive technology devices and services. Although this does not provide specific information on the student's immediate environment, it does shed light on the general environment within the district relative to assistive technology. Specifically, information on how assistive technology is included in the district technology plan was reported.

On the application, teams reported how the requested assistive technology would support instruction, allow the student to participate in the general education classroom, and support the student's progress in the general curriculum. Following the AT intervention, additional information was gathered regarding the student's participation in the general education environment. This will be reported in the section entitled "Outcomes."

On the Student Performance Profile, teams identified their expectations for how the assistive technology would benefit the student. A text field was provided, such that teams were free to write whatever they chose.

Each district that received funding for assistive technology devices completed an AT District Profile. This information provides a broader background picture of the environment in which the student is operating. For example, although the information contained in the profile does not describe the specific school or classroom environment, it does provide information about the district in general, and the level of support for assistive technology within that environment. The AT District Profile is comprised of two sections: a self-assessment rating scale on best practice in the area of AT service and an equipment inventory. The self-assessment scale addressed a variety of topics including procedural guidelines, planning and budgeting, student need, quality evaluations, planning, training, and the management and repair of devices.

Variables Related to the Tasks. On the application, teams were required to indicate the "specific tasks" that they expected the students to complete as a part of the "Statement of Critical Need." This information was documented in a text field, allowing teams flexibility in their description.

As a part of the plan for implementing the assistive technology, teams identified goals related to the Individualized Educational Plan or the Individualized Family Service Plan. The application requested that the teams identify measurable goals that the teams anticipated the student would be able to achieve within one year.

Baseline. Table 1 presents a brief summary of the organization of information in the Student Performance Profile (Pre). Teams provided baseline information on the application by presenting information on the students' "Present Level of Performance." They were instructed to "summarize the student's abilities as they relate to educational/developmental performance." Teams also wrote a "Statement of Critical Need" indicating the "specific educational and/or developmental needs" for the student, "including the specific tasks that you expect the students to do within the educational program and the environments where these tasks will be completed." A discussion of past and current modifications, including information about how long these have been in place and why they have or have not been effective also provides information on baseline function.

The designers of the Ohio ATIP and the ATOMS project staff collaborated to develop an assistive technology outcome measurement tool that could be used in conjunction with the administration of the ATIP grant funds. The Student Performance Profile (Pre) instrument was used to gather baseline information about student performance prior to the introduction of the assistive technology device(s).

For each individual student who was awarded a grant, teams were required to identify the top three areas of need that would be addressed using the assistive technology. They were then required to identify the student's rate of progress on each of the areas of need prior to the introduction of the assistive technology. The rating scale included the following descriptors: none, slow, moderate, fast, and very fast. Then, teams were to consider the context within which the student was performing and indicate the contribution that each intervention was having toward the student's baseline function. The scale ranged from zero to ten, with zero indicating "no contribution," the midpoint indicating "some contribution," and ten representing "substantial contribution."

For each area of need, teams documented up to three Individualized Education Program (IEP) goals. They rated the student's current ability (baseline function) on each IEP goal using a scale of zero to 100, with zero representing "not able," the midpoint representing "somewhat able," and 100 representing "fully able."

Table 1.

A Summary of Baseline Performance from the Student Performance Profile (Pre)

Areas of need addressed through the assistive technology (select up to 3)
  Rate of progress on each area of need
    (none, slow, moderate, fast, very fast)

> Contribution of interventions for each area of need
> > (on a scale of 0 to10; no contribution, some contribution, and substantial contribution)
>
> IEP Goals (select up to three goals for each area of need)
> Current ability on each goal
> > (0-100%; not able, somewhat able, fully able)

Intervention Approaches. Identifying the assistive technology devices and services that comprise the assistive technology intervention is important if we are to attribute outcomes to these interventions. In addition, knowing the concurrent interventions and how each contributes to a change in performance (or other to outcome measures) is important for understanding the unique contribution of the assistive technology intervention.

Assistive technology device(s). Because the assistive technology devices are provided through the ATIP, the name of the device or devices are identified in the database. In addition, because teams had to identify the critical areas of need addressed, we have information about how the teams categorized the devices according to area of need. Teams described why they selected this technology over other options.

Although teams were asked to identify past and current accommodations and modifications, no cuing system was used. Also, they were not asked specifically to list all of the assistive technology that the student was using at the time of the application, therefore this information is not necessarily available.

On the Student Performance Profile (Post), a series of questions were asked to attempt to gain information about the student's use of the device. For each goal, they were asked which assistive technology items were used in direct support of the goal. Next they were asked how often the student used the AT in support of the goal, with the range of options including: never, monthly, weekly, and daily. For each response, they could then select how often within the month, week, or day. Finally, teams indicated the duration of use by answering, "How long does the student use the item(s) each time it is used…?" The range of response options included 5-15 minutes; 15-30 minutes; 30-60 minutes; 1-3 hours; activities and tasks dictate time with device; and entire school day.

Assistive technology services. Because the ATIP application documents the assistive technology assessment process completed by the team, of the various AT services, the assessment is the one on which the most information is available. For example, details are provided regarding the student's need, potential assistive technology solutions, results of trials with various devices, and plans for implementation.

The application required documentation of the various team members and their responsibilities. In addition, teams described specific supports and services that had been and/or would be provided by the district to support this student (e.g., training for staff, parents, or students, repair and maintenance, etc.).

The Student Performance Profile (Post) asks what assistive technology services were provided to support the use of the specific item(s) for the identified goal. A list of services is provided including further evaluation, training for student, training for educational personnel, training for parents, device programming or set-up, repair, classroom implementation support, collaborative planning time, and other. Considering the importance of assistive technology services to the successful AT outcomes, the information available, excluding the well-documented assessment, is minimal. For example, we are unable to ascertain the amount and frequency of training, the time provided for customization of the device, etc.

Other interventions. A unique aspect of the Ohio ATIP project, developed collaboratively with the ATOMS Project, is the attempt to determine the contribution of various interventions to the change in performance. Teams were required to estimate the contribution of each listed intervention to the student's progress for the identified area of need. The scale ranged from zero to ten, with zero indicating "no contribution," the midpoint indicating "some contribution," and ten representing "substantial contribution." The listed intervention approaches included natural development; compensation for impairment by the student; adaptation of specific curricular tasks; redesign of instructional environment; performance expectations changed; participation in general education; related and support services; personal assistance; assistive technology devices; and assistive technology services. This provided a subjective measure of the amount of contribution of each type of intervention to the student's outcomes.

Outcomes. The outcome domains that were identified in the ATIP database include goal achievement or performance, satisfaction, participation, cost, and use. Some of these are given very little attention and others are addressed with multiple questions in the database. An outline of the information obtained in the Student Performance Profile-Post is provided in Table 2 below.

Table 2.

Outline of Information from the Student Performance Profile-Post

Critical area of need #1 (Repeated for Critical areas of need 2 and 3)
    Goal #1 (Repeat for goals #2 and #3)
        Current ability on the goal
           (0-100%; not able to fully able)
        Which items were direct supports to this goal?
           (provide a list of funded items)
        How often does the student use it in support of the goal?
           (Never, monthly, weekly, daily; If so, how often?)
        How long does student use it each time it is used?
           (5-15 minutes; 15-30 minutes; 30-60 minutes; 1-3 hours; activities
           and tasks dictate time with device; entire school day)

> AT services provided to support the use of the specific items for the
> identified goal
> > Provide a list
> Goal #2
> Goal #3
> Rate of progress (repeated for each critical area of need).
> > Provide a range (none, slow, moderate, fast, and very fast)
> Contribution of Interventions (repeated for each critical area of need)
> > Natural development
> > Compensation for impairment by the student
> > Adaptation of specific curricular tasks
> > Redesign of instructional environment
> > Performance expectations changed
> > Participation in general education
> > Related and support services
> > Personal assistance
> > Assistive technology devices
> > Assistive technology services

Goal achievement/performance. On the application, teams were required to identify measurable goals that they anticipated the student achieving with the requested technology within one year. These goals related to the student's Individual Education Plan (IEP) or Individual Family Service Plan (IFSP). Then, on the Student Performance Profile-Pre, teams were again asked to insert a goal from the current IEP, related to the identified area of need. These goals were to be "directly supported by the use of the new assistive technology." After identifying the goals, respondents indicated the student's current ability on the goal prior to the use of the assistive technology provided through the project, and then as a follow-up measure after using the AT, on the Student Performance Profile-Post. Current ability was recorded using a scale of zero to 100, with zero labeled as "not able", the midpoint labeled as "somewhat able," and 100 labeled as fully able.

On the application, teams documented an evaluation plan, indicating the techniques and frequency for collecting data to evaluate student progress toward these goals. A field for documenting the results of this evaluation plan was not identified.

On the Student Performance Profile-Pre, teams documented in a text box their expectations for how assistive technology might help the targeted student. Then on the Student Performance Profile-Post, they indicated how well those expectations were met using the following scale: not met, somewhat met, met, somewhat exceeded, and exceeded. They also had an opportunity to document any unanticipated outcomes (positive or negative) that resulted from the student's use of assistive technology.

Satisfaction. There is only one question in the database that relates to satisfaction. On the Student Performance Profile-Post, the teams were asked to indicate their

agreement or disagreement with the statement, "From the team's perspective, completing the grant process to obtain this student's assistive technology was well worth the time and effort." Unfortunately, no information is available from the student or parent's perspective relative to satisfaction (or any other outcome domain).

Participation. An important outcome in the educational environment is access and progress that a student makes in the general education environment. The Student Performance Profile-Post includes a series of questions to address this outcome. Teams respond to statements about how the use of the assistive technology had contributed to participation in the general education classroom, participation in the general education curriculum, participation in statewide (proficiency) training, graduation from high school, and interactions with general education students. Again, a scale of zero to ten was used, with zero indicating "no contribution," the midpoint indicating "some contribution," and ten representing "substantial contribution."

The person completing the Student Performance Profile-Post indicated their degree of agreement with the statement, "The team believes that this assistive technology has had a strong impact on the student in environments outside the school (i.e., home, community, work)."

Cost. An important component of the ATOMS Model is the cost that is associated with each phase of outcome measurement. Considering the context, there are costs associated with the design of the environment, including both health promotion and universal design features. In addition, an individual's baseline function has associated costs that may change following intervention. The various interventions cost money, and the resulting change in function has cost implications (e.g., increase in independent mobility may result in decreased costs for attendant care).

The Ohio ATIP database was examined to determine what information is available on various cost variables. Although there is no cost information available related to the context or to baseline function, the cost of the assistive technology device(s) provided to the students is available. When teams selected the assistive technology solutions for the student, they were required to justify their selection. This justification included responding to the question: "Is this a cost-effective solution to meet the individual student's needs?" Although teams were not required to include cost information on items that they considered but did not select, they did indicate what these devices were. Comparison could be made, therefore between the cost of items selected and those that were considered and rejected.

On the application, teams documented the costs of the supports and services that the district agreed to provide to the student. These included such things as training, teacher planning time, repair and maintenance, and technical assistance. The funding source for each of these services was documented.

Other funding sources that were considered or pursued for the student were documented, including the results and an explanation of the results.

Use. Teams were required to identify the items that the student used as direct supports for each goal that had identified. They then identified how often the items were used in support of the identified goal (frequency) and then how long the student used the items each time it was used (duration).

District-level outcomes. In addition to the outcomes that were identified relative to individual students, each school district that received ATIP funds for a student was required to complete the AT District Profile. The same information was completed prior to receiving ATIP funds and as a follow-up measure. The information contained in the Profile is outline in Table 3.

Table 3.

AT District Profile

Part I: Self-Assessment Scale
>   Rated on a scale of 1 –6: 1 indicates "needs improvement" and 6 indicates "best practice"
>   1. Procedural guidelines: district personnel familiar with Ohio's model policies and procedures for the delivery of assistive technology devices and services.
>   2. Planning and Budgeting: Comprehensive technology plan provides for the educational and assistive technology needs of all students.
>   3. Student Need: Assistive technology determinations are based on the unique educational needs of each individual student. A variety of devices and services are explored.
>   4. Quality evaluations: assistive technology assessments are conducted by a multi-disciplinary district team, which actively involves the student and family.
>   5. Planning: The assistive technology implementation plan facilitates the use of assistive technology when and where needed to support active participation in educational activities and routines.
>   6. Training: Training for student, family and staff are an integral part of the district implementation plan.
>   7. Management and Repair: The assistive technology implementation plan includes management, maintenance and repair of devices.

Part II: Equipment inventory: Number of students using various pieces of equipment, categorized by devices to assist vision, hearing, speech, movement/positioning/access, and learning.

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Discussion and Implications for a Next Generation Outcome Measurement System

The analysis of the ATIP database for outcome related information has yielded promising results. First, because measuring the outcome of assistive technology was considered during the development of the grant administration process, a number of important variables were included in the data collection tools. These have been reviewed in the prior section of this report, and include, for example, questions about the impact of the assistive technology on the student's access and participation in the general education environment and the relative contribution of the various interventions to the student's rate of progress. The relative contribution of interventions addresses an important aspect of outcomes measurement that is frequently ignored, that is, isolating the impact of the assistive technology from concurrent interventions. Further analysis is required to determine how successful the approach used by the ATIP was.

Second, the ATIP database has demonstrated the success of large-scale Internet-based data collection. Although this format requires greater knowledge and expertise to design and administer, and requires the provision of technical support, substantial gains are realized in the efficiency of data analysis. The use of limited sets (drop down menus, radial buttons, etc.) makes analysis easier. Any time a text field was used, searching, summarizing, and analyzing is more difficult. Potentially, the text that was entered by respondents can be analyzed with a goal of developing further closed set responses for a future measurement system. Balance is needed between the richness of open-ended text responses and the ease of analysis provided by the responses with a limited set of choices.

Third, there is currently no reporting mechanism by which teams can examine the outcomes data for their students, except by looking at the numbers that they entered and their responses to questions. The web-based format lends itself to sharing of this information in a graphical form; however, this has not yet been made available to teams.

Fourth, the number of variables in the database is large, with a great deal of information available for analysis. Motivation to answer the many questions contained in the various instruments was high because completion was linked to the receipt of funding. However, analysis is required to determine which fields were salient. Analysis of the database has the potential to lead to the discovery of factors important for measuring outcomes. One of the challenges will be determining those variables that are essential, those that are redundant, and those that may be unnecessary or not worth the time and effort to collect. This analysis should contribute to the development of a parsimonious system of outcome measurement.

Fifth, in examining the database, it is apparent that there is information that has not been collected; therefore, certain questions cannot be addressed. Specifically, there is no information available about race, ethnicity, or socio-economic status (e.g., qualification for free or reduced lunch). Also, there is no way to know what specific disabilities an individual with multiple disabilities has. Additionally, no information is available from the parent or student's perspective about how well the assistive technology is working for the student, what impact it has had, or how satisfied they are with the

technology. Although these are limitations of the ATIP database, they highlight the need to include this information when developing an outcomes measurement system.

The ATIP database has demonstrated the success of a system that integrates outcome measurement with the service delivery process. The successful use of the Internet for data collection has resulted in a large amount of data that has the potential to inform the development of an outcome measurement system that will be useful to those in a range of service delivery settings. Further analysis of what is missing from the dataset and what questions cannot be answered should also be informative.

Outline of Information from the Student Performance Profile-Post

Critical area of need #1 (Repeated for Critical areas of need 2 and 3)
    Goal #1 (Repeat for goals #2 and #3)
        Current ability on the goal
            (0-100%; not able to fully able)
        Which items were direct supports to this goal?
            (provide a list of funded items)
        How often does the student use it in support of the goal?
            (Never, monthly, weekly, daily; If so, how often?)
        How long does student use it each time it is used?
            (5-15 minutes; 15-30 minutes; 30-60 minutes; 1-3 hours; activities
            and tasks dictate time with device; entire school day)
        AT services provided to support the use of the specific items for the
        identified goal
            Provide a list
    Goal #2
    Goal #3
    Rate of progress (repeated for each critical area of need).
        Provide a range (none, slow, moderate, fast, and very fast)
    Contribution of Interventions (repeated for each critical area of need)
        Natural development
        Compensation for impairment by the student
        Adaptation of specific curricular tasks
        Redesign of instructional environment
        Performance expectations changed
        Participation in general education
        Related and support services
        Personal assistance
        Assistive technology devices
        Assistive technology services

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Reference

Smith, R. O. (2002). Assistive technology outcome assessment prototype measuring "ingo" variables of "outcomes". *RESNA 25th International Conference on Technology and Disability: Research, Design, Practice and Policy*, 239-241.

Appendix A: Summary of Outcome Related Data from the Ohio Assistive Technology Infusion Project

ATIP Information Related to Outcome Measurement	Data source/Instrument	Field type or response options	Information gathered re pre-AT condition? *	Information gathered or available re post-AT condition? **
Context: The Individual				
Gender	Application	Text	Yes	No change
Age	Application	Text	Yes	Updated, if needed
Grade	Application	Text	Yes	Updated, if needed
Primary Disability	Application	Text	Yes	Updated, if needed
Present level of performance, student's abilities	Application	Text	Yes	Not addressed
Statement of critical need	Application	Text	Yes	Not addressed
Critical area of need (Top 3)	Student Performance Profile-Pre	Choice of subcategories from within the following 6 main categories: 1) Academic content; 2) Accessing and manipulating instructional materials and tools; 3) Work habits/Study skills; 4) Communication; 5) Mobility; 6) Personal care.	Yes	No change

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Student information in the description of features required by student	Application	Text	Yes	Not addressed
Trial period results	Application	Text	Yes	Does not apply
Context: The Environment				
Environment identified relative to tasks (for each critical area of need)	Application	Text	Yes	Not addressed
Past and current accommodations and modifications, including how long and effectiveness	Application	Text	Yes	Not addressed
Specific supports and services provided in past and proposed	Application	Text	Yes	Not addressed
Location or setting of special education	Application	Text	Yes	Not addressed
Composition of team providing services to student	Application	Text	Yes	Not addressed
Building and district efforts to integrate AT and how included on district tech plan	Application	Text	Yes	Not addressed
Description of how AT would support participation and allow participation in general education environment	Application	Text	Yes	Related questions on post
Expectations for how AT would benefit	Application	Text	Yes	Related questions on post
General information about support for AT within district	AT District Profile	Scale: Number of devices	Yes	Yes
Context: The Tasks				

Tasks to be completed (for the statement of critical need)	Application	Text	Yes	Not addressed
IEP or IFSP goals	Student Performance Profile-Pre Student Performance Profile-Post	Text	Yes	Information provided
Baseline (Repeated as outcome indicators)				
Present level of performance, student's abilities	Application	Text	Yes	Not addressed
Statement of critical need	Application	Text	Yes	Not addressed
Rate of progress on each area of need prior to using AT and while using AT	Student Performance Profile-Pre Student Performance Profile-Post	Scale: none, slow, moderate, fast, and very fast	Yes	Yes
Contribution of interventions	Student Performance Profile-Pre Student Performance Profile-Post	Scale: 0-10, no contribution, some contribution, and substantial contribution	Yes	Yes
Current ability on each goal	Student Performance Profile-Pre Student Performance Profile-Post	Scale: 0-100, not able, somewhat able, and fully able	Yes	Yes
Intervention Approaches				
Accommodations and modifications used prior and/or in conjunction with the new AT	Application	Text	Yes	Not addressed
Assistive technology device: supplied by grant	Application	Specific device name	Does not apply	Does not apply
For each goal: Which AT is used, and frequency and duration of use	Student Performance Profile-Post	Options provided	Not addressed	Yes

AT Service: Information on assessment process	Application	Text	Yes	Does not apply
AT Service: Team members and their roles, supports and services they will provide	Application	Text	Yes	Not addressed
AT services provided	Student Performance Profile-Post	Select from defined list	Not addressed	Yes
Contribution of each of 10 different interventions	Student Performance Profile-Pre Student Performance Profile-Post	Rate the contribution toward student progress; Scale: 0-10, no contribution, some contribution, and substantial contribution	Yes	Yes
Outcomes				
Goal Achievement /Performance:				
IEP goals (for each critical area of need)	Student Performance Profile-Pre Student Performance Profile-Post	Text	Yes	Information provided
Current ability on each goal	Student Performance Profile-Pre Student Performance Profile-Post	Scale: 0-100, not able, somewhat able, and fully able	Yes	Yes
Evaluation plan	Application	Text	Yes	Not addressed
Unexpected outcomes	Student Performance Profile-Post	Text	Does not apply	Yes
Satisfaction				

Building contact survey: grant process was worth the time and effort	Building contact person survey		Does not apply	Yes
Participation: Access and progress in general education				
AT contribution to participation in classroom	Student Performance Profile-Post	Rate the contribution toward student progress; Scale: 0-10, no contribution, some contribution, and substantial contribution	Not addressed	Yes
AT contribution to participation in curriculum	Student Performance Profile-Post	Rate the contribution toward student progress; Scale: 0-10, no contribution, some contribution, and substantial contribution	Not addressed	Yes
AT contribution to participation in statewide assessment	Student Performance Profile-Post	Rate the contribution toward student progress; Scale: 0-10, no contribution, some contribution, and substantial contribution	Not addressed	Yes
AT contribution to graduation rate	Student Performance Profile-Post	Rate the contribution toward student progress; Scale: 0-10, no contribution, some contribution, and substantial contribution	Not addressed	Yes

AT contribution to participation in interaction with general ed students.	Student Performance Profile-Post	Rate the contribution toward student progress; Scale: 0-10, no contribution, some contribution, and substantial contribution	Not addressed	Yes
Impact of AT in non-school environments	Building contact person survey	Likert Scale	Not addressed	Yes
Costs				
Cost of device	Application	Amount	Does not apply	Does not apply
Justification of cost-effectiveness	Application	Text	Does not apply	Does not apply
Other items considered but rejected (no costs provided, but information available or could be found)	Application	Text	Does not apply	Does not apply
Use				
Frequency	Student Performance Profile-Post	Check boxes: never, times per month, times per week, times per day	Not addressed	Yes
Duration	Student Performance Profile-Post	Check boxes with number of minutes/hours; also "Activities and tasks dictated time with device" and "Entire school day."	Not addressed	Yes

* Information gathered re pre-AT condition?

This column identifies whether or not this is information is available prior to the provision of AT devices obtained with grant funds.

Response Options:

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Yes: This information is available regarding the situation prior to the AT intervention.

Does not apply: This information is not applicable to the pre-intervention situation.

Not addressed: Although this information may be applicable, it was not gathered.

** Information gathered or available re post-AT condition?

This column identifies whether or not this is information is available following the provision of AT devices obtained with grant funds.

Response Options:

Yes: This information is available regarding the situation prior to the AT intervention.

Information provided: When participants were completing the post intervention instruments, they were provided with information based on their responses on the pre-intervention instruments.

Related questions on post: Additional questions were asked post-intervention that relate to the questions asked on the pre-intervention instruments.

No change: The information will not change over the course of the intervention or participants are not permitted to make changes in this area..

Updated, if needed: This information may change, and if so, the information will either be updated automatically or participants have an opportunity to update the information.

Does not apply: This information is not applicable to the post-intervention situation.

Not addressed: Although this information may be applicable, it was not gathered.

Smith, R. O. (2002). Assistive technology outcome assessment prototypes: Measuring "ingo" variables of "outcomes". RESNA 25th International Conference: Technology & Disability: Research, Design, Practice and Policy, Minneapolis, RESNA Press.