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ABSTRACT OF DISSERTATION

Joy Smiley Zabala

The Graduate School
University of Kentucky

2004

THE DEVELOPMENT AND EVALUATION OF QUALITY
INDICATORS FOR ASSISTIVE TECHNOLOGY SERVICES

ABSTRACT OF DISSERTATION

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Education in the
College of Education
at the University of Kentucky

By

Joy Smiley Zabala

Lake Jackson, TX

Co-Directors: Dr. Ted S. Hasselbring, Professor of Special Education and
Dr. A. Edward Blackhurst, Professor Emeritus of Special Education

Lexington, Kentucky

2004

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ABSTRACT OF DISSERTATION

THE DEVELOPMENT AND EVALUATION OF QUALITY INDICATORS FOR ASSISTIVE TECHNOLOGY SERVICES

Survey research was used to conduct a formative evaluation of Quality Indicators for Assistive Technology Services (QIAT) by 120 leaders in the field of assistive technology. Survey respondents represented five different types of assistive technology interest and responsibilities: consumers of assistive technology services and family members, district and regional assistive technology leaders, state and national assistive technology leaders, assistive technology leaders in higher education, and assistive technology policy leaders. Respondents reviewed QIAT and completed either print or online electronic versions of a survey in which they provided their perspectives on the need for quality indicators, the importance of each quality indicator contained in QIAT, the clarity of each accompanying intent statement, and the usefulness of QIAT to people with assistive technology interests and responsibilities similar to their own.

Results of this investigation suggested that quality indicators are needed to guide the development and delivery of assistive technology services, that the 39 quality indicators contained in QIAT are important, and that QIAT would be useful to people with varied interests and responsibilities in assistive technology. The perceptions of the majority of the participants about QIAT were positive. Analysis of the rankings indicated that every quality indicator contained in QIAT was considered important by greater than 92% of the participants and every intent statement was considered clear by greater than 82% of the participants. Results also indicated that participants believed that some revisions in the wording and reordering of the items contained in QIAT would increase clarity and that the identification and development of

training and products aligned to QIAT could aid in the development and delivery of effective assistive technology services.

Proposed revisions were made in QIAT as a result of respondent recommendations. Implications for practice, future development, and additional research also were proposed.

KEYWORDS: Disability, Assistive Technology, Quality Indicators, Standards, Public Education, Special Education, Formative Evaluation

Joy Smiley Zabala

November 8, 2004

THE DEVELOPMENT AND EVALUATION OF QUALITY
INDICATORS FOR ASSISTIVE TECHNOLOGY SERVICES

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DISSERTATION

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The Graduate School
University of Kentucky
2004

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DEDICATION

This work is dedicated to the memory of my father, Wallace Bruce Smiley who spent his life in the service of others—as U.S. Marine in the Pacific Theatre during World War II, as a teacher and principal, and, finally, in his second career, as an ordained Deacon of the Episcopal Church. His insatiable curiosity about the world around him and his belief in the value of continuous improvement guided my professional growth as an educator. He and my mother, Edna Miller Smiley, filled my life with the love and unfailing faith in my ability to make a difference that have guided—and still guides—my life.

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Chapter I

Introduction

As early as 1990, a policy letter from Judy Schrag, then Director of the Office of Special Education Programs (OSEP) at the United States Department of Education, included a specific directive requiring the consideration of assistive technology during the development of Individualized Educational Programs (IEPs) for children with disabilities. Schrag's letter indicated that the provision of a free, appropriate, public education (FAPE) for all students with disabilities must include the tools needed for the student to benefit from educational opportunities. Schrag (1992) stated that:

If the participants on the IEP team determine that a child with handicaps requires assistive technology in order to receive FAPE and designate such assistive technology as either special education or a related service, the child's IEP must include a specific statement of such services, including the nature and the amount of such services. (p. 2)

Schrag's policy letter indicated that the provision of a FAPE for all students with disabilities must include the tools needed for the student to benefit from educational opportunities. However, laws pertaining to the education of students with disabilities did not *explicitly* include assistive technology devices and services until the Individuals with Disabilities Education Act of 1990 (IDEA) was passed later that year. IDEA (PL 101-476) not only mandated the provision of assistive technology devices and services if determined to be required for the provision of a FAPE, but also provided a general description of assistive technology devices and services.

In the decade since the passage of the IDEA, much attention has been focused on the procedures and practices that school districts use to determine whether or not a student with disabilities requires assistive technology devices and services, and, if required, the nature of those devices and services. This focus has intensified since the reauthorization of IDEA in 1997 (IDEA '97). With the passage of IDEA '97, the responsibility of each IEP team to consider each student's need for assistive technology devices and services was explicitly included in the statute (IDEA, 1997). Unfortunately, members of IEP teams often are unprepared to implement this statute effectively and school districts often are unprepared to provide suffi-

cient training and support in assistive technology to members of IEP teams and others involved in assistive technology work (Bowser & Reed, 1995; Hutinger, Johanson, & Stoneburner, 1996; Todis & Walker, 1993).

The ability of a state or local education agency to develop and provide assistive technology services of quality has been complicated by at least three realities: (1) the complexity of issues and processes related to assistive technology (Bowser & Reed, 1995; Carl, Mataya, & Zabala, 1994; Hutinger et al., 1996; MacGregor & Pachuski, 1996; Todis & Walker, 1993; Zabala, 1995; Zabala, 1996), (2) the large numbers of diverse individuals involved in the processes (U. S. Department of Education, 1998), and (3) lack of a unifying set of guidelines to aid members of IEP teams and school districts in the development, provision, selection, and evaluation of assistive technology services (Zabala et al., 2001).

Statement of the Problem

Though federal policy requires the consideration and provision of assistive technology devices and services (IDEA '97), the literature reveals that there is a significant, and continuing, gap between what is required by policy and what consistently occurs in educational settings. The literature suggests that this continuing gap exists because of barriers to consistent, equitable implementation of policy related to assistive technology (Cook & Hussey, 1995; Hutinger, Johanson, & Stoneburner, 1996; MacGregor & Pachuski, 1996; Todis, 1996; Todis & Walker, 1993). Some of those barriers include (1) lack of a systematic way of planning, developing and delivering assistive technology devices and services; (2) lack of opportunity for school staff and family members of students with disabilities to learn about and participate in assistive technology processes; and (3) differing perspectives, attitudes, knowledge, skills, and levels of preparedness of the many people who have a role in the consideration, development, delivery, and evaluation of assistive technology services in school settings.

Regardless of these concerns and the training issues they raise, the current federal mandate suggests that efforts must be undertaken to greatly increase the capacity of educators and family members related to assistive technology. It has been suggested that the development of a set of widely applicable, and generally accepted, indicators that could serve as standards to guide the development, delivery, and evaluation of assistive technology services of consistently high quality would be helpful in this endeavor.

In response to this suggestion, the investigator and a colleague convened a small, diverse group of assistive technology leaders from across the country to propose a set of Quality Indicators for Assistive Technology Services (Bowser, Korsten, Reed, & Zabala, 1999). This work, known as QIAT, was proposed to guide the work of five groups with interests and responsibilities related to assistive technology functions. The groups included: service providers in local and regional education agencies; consumers and family members; higher educational personnel; and the developers of policy and guidelines

For two years, QIAT was revised and enhanced based on formative evaluation by hundreds of people around the country before appearing in the research literature (Zabala et al., 2001). Though formative evaluation data gathered during its development indicated that QIAT would be useful (Zabala et al., 2001), there remained a need for research to describe the development of QIAT and determine the utility of the indicators to people within the five groups with acknowledged leadership, expertise, and experience in assistive technology. There was also a need to determine if QIAT is sufficiently comprehensive or in need of modification.

The purpose of this investigation was to describe the development of QIAT and determine the degree to which expert reviewers agree upon the importance of each of the QIAT Indicators, the need for modifications to QIAT, and the extent to which QIAT is expected to be needed and useful in meeting the needs intended users. To achieve this purpose, a survey of leaders from each of the five groups with interests and responsibilities in assistive technology was conducted. Participants were asked to review QIAT and provide their perceptions of the need for quality indicators, the importance of each quality indicator, the clarity of each accompanying intent statement, and the usefulness of QIAT to people with assistive technology responsibilities and interests similar to their own. They were also asked to make suggestions about needed revisions or additions to QIAT. The remainder of this document includes a review of the literature that supports this investigation, the methodology used, the results of the investigation, and the conclusions and implications drawn from the results.

Chapter II

Review of the Literature

Following is a review of the literature that supports this investigation. It is presented in three sections. The first section provides a review of the issues in assistive technology service provision and the state of school-based personnel to deal with those issues. The second section presents a review of the research related to the identification of barriers to effective assistive technology service provision. The third section reviews the literature related to social validation and survey research as they relate to this investigation.

Issues in Assistive Technology Service Provision

The issues involved in assistive technology service development and delivery are complex and require collaboration and understanding involving much more than the basic operation of the assistive technology devices (Bowser & Reed, 1995; Carl, Mataya, & Zabala, 1994; Hutinger et al., 1996; MacGregor & Pachuski, 1996; Todis & Walker, 1993; Zabala, 1995; Zabala, 1996). Vast numbers of people are involved in these processes. In a report to Congress, the Office of Special Education Programs of the United States Department of Education (1998) indicated that six million students with disabilities were receiving services under the provisions of IDEA. Each of these students had an IEP team. Each IEP team was charged with considering the assistive technology needs of the individual student.

Though the number of special education teachers and other IEP team members with some awareness and training in assistive technology has increased (Blackhurst, MacArthur, & Byrom, 1987), it is very likely that the majority of the tens of thousands of individuals who have served on IEP teams have had little or no experience with assistive technology decision-making (Bowser & Reed, 1995; Todis & Walker, 1993; Zabala, 1996). Training and support for learning about assistive technology processes are in short supply (Blackhurst & Morse, 1996). When they do exist, there has been considerable variance in focus and quality (Hutinger et al., 1996). Often, it has been the responsibility of individual districts to prepare team members appropriately—a task for which there have been few resources.

Educational entities are expected to develop and provide quality educational programs for all students. Students with disabilities can be expected to be active participants in learning processes, to the greatest extent possible, so that they can benefit from opportunities present in

their learning environments. This is no small task. When the element of assistive technology devices and services is added, the task can become monumental and quite beyond the existing capacity of some classrooms, schools, and districts. This can be true whether the task is one of developing comprehensive services for all students within a school district or developing an appropriate educational program for an individual student.

While some level of assistive technology services is available in most school districts, as required by law, there is considerable variation in the quality and consistency of those services (Todis, 1996). Much of the variation is due to individual understandings of the range and complexity of the major functions involved in the provision of assistive technology services. These major functions include, but are not limited to, administrative support for the development and maintenance of comprehensive assistive technology services, consideration of a student's need for assistive technology devices and services, assistive technology assessment, implementation of assistive technology services, and the evaluation of the effectiveness of those services. Further, each of these services may be provided directly to students, or they may be provided to families and school personnel so that they are prepared to support the students who use assistive technology devices.

Consideration and determination of assistive technology devices and services for an individual student require much of IEP team members. Consideration of a student's need for assistive technology is a complex procedure. Each student with disabilities presents a unique set of situations, needs and challenges. There are many possible ways that assistive technology may benefit a student with disabilities in moving toward mastery of educational goals and objectives. If, as a result of adequate consideration, the IEP team determines that assistive technology devices and services are required in order for the student to receive a FAPE, the development and provision of effective assistive technology services is also quite complex.

While multidisciplinary specialists in areas related to assistive technology may make recommendations to the IEP team, the actual consideration of a student's possible need for assistive technology and decisions related to assistive technology falls to members of the IEP team, as do all other decisions related to the development and provision of a FAPE for that student. The team should include those people affected by the decisions made by the team as well as those who have the knowledge and skills to help the team make informed decisions.

According to Swengle and Marquette (1997), an important factor to keep in mind with regard to team composition is that each team may have a different constituency depending upon the individual student's needs, goals, and existing circle of support. Team members may include the student with disabilities, parents, administrators, special education teachers, general education teachers, speech language pathologists, medical personnel, related service providers, and a host of others (Calculator & Jorgenson, 1991).

The involvement of parents as active team members is a critical component in the success of any assistive technology consideration and intervention (Gray, 1997). Family members and professionals who serve as team members collaboratively identify student needs, equipment needs, alternative or adaptive curriculum, and instructional methods that would foster a child's participation at school (Calculator, 1997). Team members combine their expertise to consider which skills the student must have in order to take advantage of learning opportunities, which skills are not important, and which are important but can be incorporated into a well-balanced intervention plan (Richle, York, & Sigafos, 1991). In order for all of these people to participate actively and well in all IEP processes—including the consideration of assistive technology devices and services—most team members require training and support in the structure and function of the IEP process, the specifics of assistive technology consideration, and the fundamentals of effective collaborative work. Such training and support is in short supply, and, when it does exist, there is considerable variance in focus and quality. It is often the responsibility of each district to prepare team members appropriately, a task for which district personnel often feel unprepared.

The development of comprehensive assistive technology services for all students in a local school district requires much of school administrators and leadership personnel. While educational leaders and individuals appear to be increasingly aware of the need to build the assistive technology capacity, Dr. Francine Holland, Director of Instructional Services at Region XI Education Service Center in Ft. Worth, Texas, has stated that they are often unsure about how to proceed in providing effective assistive technology services (personal communication, March 21, 2001). When educational leaders seek outside support in developing assistive technology capacity, they may be unsure of where to seek assistance. In addition, it may

be difficult for them to determine whether services that are recommended or developed have merit.

Though some organizations have provided training focused on building the capacity of school districts and individual service providers in various aspects of assistive technology service development and provision, these programs have been rare (Todis, 1996). Some state, regional, and local education agencies (e.g., Pennsylvania, Oregon, Texas, Georgia, and Wisconsin) and some universities (e.g. University of Kentucky, University of Connecticut, University of New Mexico, and California State University at Northridge) have been proactive in moving toward professional development programs that train personnel to provide assistive technology services and lead assistive technology processes. Some local school districts have been able to employ and allocate personnel who have been specifically trained in leadership for the development and delivery of assistive technology services. However, a survey of districts in Oregon indicated that less than 15% of the districts in that state have been able to employ trained assistive technology leaders (Bowser, 1999).

A few states, such as Kentucky, have developed extensive state guidelines to assist districts in the development of assistive technology services (Kentucky Department of Education, 1997). However, in the absence of either capacity-building professional development or state guidelines, many districts have had to develop guidelines and services on their own with little to guide them and no criteria by which to measure the merit or worth of their efforts.

Though several useful models to help districts prepare IEP team members have been developed (Bowser & Reed, 1995; Blackhurst & Lahm, 2000; Zabala, 1995), there has been no unifying set of indicators or standards that could be used to develop and determine the quality of services, regardless of the model being used. If such a guide existed, it could serve as a criterion measure for policy makers, administrators, service providers, higher education and professional development specialists, and consumers of assistive technology services. It could aid in the development, provision, selection, and evaluation of assistive technology services, including the provision of assistive technology devices.

Summary. The ability of a state or local education agency to develop and provide assistive technology services of quality is complicated by at least three realities: (1) the complexity of issues and processes related to assistive technology, (2) large numbers of diverse

individuals involved in the processes, and (3) lack of a unifying set of quality indicators to aid members of IEP teams and school districts in the development, provision, selection, and evaluation of quality assistive technology services.

Identifying Barriers to the Provision of Assistive Technology Services

A review of the research literature on assistive technology revealed little evidence of existing quality indicators or standards that can be used to support the development, provision, and determination of merit or worth of assistive technology services in school settings. It did, however, reveal several studies that identified concerns and barriers related to effective assistive technology service provision.

In their book about assistive technology principles and practices, Cook and Hussey (1995) stated:

... despite the growth in interest, application and training there has been a lack of carefully articulated principles as well as practices in the emerging assistive technology field. The common approach has been to focus on currently available devices with little synthesis of principles and practices. (pg. vii)

Data gathered in a two-year qualitative study conducted with thirteen students, indicated that a variety of factors influenced the level of successful assistive technology use by those students (Todis & Walker, 1993). Data collected by interview and observation in each of the case studies indicated that the level of use of assistive technology was impacted by the interaction of evaluation, funding for assistive devices, acquisition, training, and daily use. The researchers attempted to determine both the benefits of using assistive technology and the barriers that were perceived as interfering with successful assistive technology use.

While many benefits of assistive technology for students were noted, a synthesis of the findings of the Todis and Walker (1993) study indicated that there were many barriers that interfered with student performance, including a significant focus on devices by the professionals working with the students. Several consistent themes ran throughout the findings. The authors identified one of the critical shortcomings of training for staff as the “failure to link operation of the device to student goals” (p. 11). They stated that staff members working with the students “were not always clear that the goal (of assistive technology services) was not device use by the student, but rather, the student using the device for specific tasks and IEP

goals” (p.11). In several instances there were reports that staff members waited for improvements in student performance until new devices were received, rather than developing and providing services that would support new learning and increase student skills with currently available devices so that when new devices became available, students would be adequately prepared to use them.

Another barrier identified by Todis and Walker (1993) was the lack of adequate communication between home and school, as well as between different service providers within school settings. This barrier can limit a student’s access to available assistive technology. In one student’s case, parents and teachers each assumed that the student’s assistive technology was being used in the other setting. Several months passed before it was discovered that the device was not being used in either setting. This misunderstanding resulted in a significant loss of time in which the student could have been using the technology to address educational goals.

Many of the barriers identified in Todis and Walker’s (1993) study were related to a lack of adequate understanding, communication, and planning in each phase of assistive technology service delivery. This research showed that devices tended to be underutilized for the educational goals for which they were intended. While the researchers did not believe that this was because of ill will on anyone’s part, the result was that students were under-served and their educational results were not positively impacted on a consistent basis. Todis and Walker (1993) concluded that, beyond barriers identified in any one area, the most pervasive barrier was a lack of understanding of the interaction of the different factors that influence effective assistive technology use.

In a later report based on the same study, Todis (1996) examined the differing perspectives that family members and school personnel bring to the task of determining the assistive technology devices and services needed by students and discussed how difficult it is to reach consensus about what can and should be done. She reported that when assistive technology was successful, it was because the devices were regarded as tools for the accomplishment of educational goals. Todis underscored the complexity of factors related to the provision of educational services to students with disabilities, particularly when assistive technology is in-

volved. She called for closer examination of both intended and unintended results of the processes (or lack thereof) used to make decisions about assistive technology services.

Findings related to staff training and preparedness also were noted by MacGregor and Pachuski (1996) in survey research with experienced assistive technology service providers in the state of Pennsylvania. Those researchers addressed questions of teacher preparedness to use devices that students brought to the classroom, and supports that teachers thought they needed to use assistive technology in the classroom. Teachers who were highly trained in the operation and use of technology in the classroom were asked to rank a selected list of potential barriers in terms of how they perceived each barrier interfered with their ability to use assistive technology with their students. Even among these experienced users of assistive technology in the classroom, the higher ranks were given to barriers related to concerns about *devices* rather than about students' *use* of the devices. It must be noted, however, that choices with factors related to student use of devices were included while choices that directly addressed the use of devices by students for the accomplishment of educational goals were not. Similarly, the researchers reported that the supports that were perceived to be most important, and most difficult to access, were assistance in setting up and programming devices, funding, and training.

MacGregor and Pachuski (1996) concluded that there was a need for *interdisciplinary planning teams to develop carefully considered programs and supports for the use of assistive devices* (p. 14). That study, like the study done by Todis and Walker (1993), emphasized the need for careful planning and the importance of the interconnectivity of factors that influence the provision of assistive technology devices and services.

Hutinger, Johanson, and Stoneburner (1996) identified similar barriers to the use of devices in their longitudinal case study research with children who were introduced to assistive technology in their very early years and who had continued to use technology for between three and eight years. Though some barriers were related directly to the students, this study echoed the findings of the previous studies by indicating that the most frequently noted barriers involved differing attitudes, lack of knowledge, and insufficient skills on the part of parents and service providers. In each of the six cases reviewed, differing perspectives and attitudes between families and school personnel were cited as barriers to the effective use of as-

sistive technology by students. Other major barriers that were identified in that study were, most likely, related to this one. Those included the students' educational placements, transitions from one school environment to another, and the means by which technology was acquired. Chief among the many barriers that this study identified were issues related to lack of alignment of goals and expectations and lack of collaboration.

In their conclusion and recommendations, Hutinger et al. (1996) called for increases in proactive efforts by administrators, collaborative planning, staff training, parental support, equipment management, and a clearly defined system of policies and procedures.

Summary. The studies reviewed in this section demonstrate that, in order for school districts, school personnel and family members to collaborate effectively, they must be well informed about the complex web of interrelated issues that impact the effectiveness of assistive technology service delivery. Each of the studies identifies lack of common understanding as a major concern and points to the need for a systematic way of planning, developing and delivering assistive technology devices and services that is clearly understood by all participants.

From the review of the literature in this section, a contributing factor to the lack of common understanding appears to be closely aligned to the differing perspectives, attitudes, knowledge, skills, and levels of preparedness of the many people who have a role in the consideration, development, delivery, and evaluation of assistive technology services in school settings. The difficulty of moving from individual differences toward shared understanding is exacerbated by the lack of any unifying structure to guide collaborative work in the design and delivery of assistive technology services.

Determining Validity and Utility

This review of the literature concludes with articles and research studies in which the concepts of validity and utility were explored. These articles and studies discuss validity and utility of theories, materials, and methodologies and various research methods that can be used to establish validity and utility. It is these studies that provide support for the research questions and methodology proposed for use in the expert evaluation section of this study.

While there is some disagreement among experts about the number of types of validity, it is generally agreed that the concept of validity is related to the degree to which what is

intended to be measured or described is actually being measured or described. (Gay, 1996; Rymarchyk, n.d.). Many experts describe face validity as the degree to which a measure or description *appears* to be relevant to those who may be affected by the measurement or description. While face validity, or lack thereof, may have impact on the acceptability and application of a measure or description, the assessment of face validity is generally considered to be a first step that can be further strengthened through additional validity measures (Blackhurst et al., 1987; Gay, 1996). Though there are several other measures of validity, (e.g., construct, concurrent, predictive), two additional validity measures that have relevance to this investigation are social validity (Wolf, 1978) and content validity.

Similar to face validity, but more rigorous, is the concept of social validity. Social validity is described as a subjective measure of social importance that is determined through the judgment of those within the society, in other words, a measure of acceptability of a program or procedure to its consumers (Alberto & Troutman, 1990; Kerr & Nelson, 1998; Stainback & Stainback, 1984; Wolf, 1978). Wolf (1978) explained three dimensions of social validity that are worthy of consideration and measurement, including (1) social significance, or what society wants, (2) social appropriateness, or what society finds acceptable, and (3) social importance, or what society considers to be satisfactory results.

Content validity addresses the extent to which the content of the measure or description is an important and adequate representation of the domain or phenomenon to which the content applies (Gay, 1996; Rymarchyk, n.d.). Content validity is generally determined through a review of the content by those judged to be expert in the field to which the content applies. The theory behind this is that experts have more subtle and in-depth knowledge about the field than others and, thus, are more able to judge that the measurement or description accurately includes the range of appropriate range of content needed to accurately measure or describe what is intended to be measured or described (Gay, 1996; Rymarchyk, n.d.)

Gresham and Lopez (1996) conducted research on social validation as a unifying concept for school-based consultation research and practice by school psychologists. Though much of their research was directly related to that population, their article included interesting information about social validity, in general. They stated that social validation represents a unifying concept for bridging the research to practice gap. They, like Wolf (1978), related so-

cial validity to the assessment of social significance, social acceptability, and social importance. In their research on social validity, they listed several methods which can be used to determine social validity, but stressed that all involve some way of asking relevant consumers of a program, idea, or innovation for their subjective judgments about the idea or object being studied. One of the important issues that was mentioned in regard to this type of research was the selection of the most important consumers as participants in the research and the determination of how much weight to give their opinions.

Blackhurst, MacArthur, and Byrom (1987) conducted a national survey of 250 college and university special education faculty members to determine the perceived validity and relative importance of 43 microcomputing competencies associated with the functions that professors typically perform. The initial list of competencies was developed through task analysis of the functions and edited by a panel of judges for clarity and comprehensiveness. They developed a questionnaire with five rating categories: X= not sure about the importance of this competency; S= specialty area; of interest to only a few faculty; N= not useful; U= useful; and, E= extremely useful for improving productivity. After review by the panel of judges, the instrument was edited and distributed.

The researchers had a response rate of 59.2% with 148 of the questionnaires returned. They analyzed the data to determine the rank of each function by importance to the respondents and reported the data in a table and in discussion. Both the table and the discussion were arranged by function with the competencies listed beneath the functions in order of perceived importance.

In addition to the actual conclusions about the competencies, the researchers stated that *the panel of judges confirmed the face validity of the competencies and the questionnaire respondents made judgments about the relative value of each competency statement* (p. 159). Blackhurst et al. (1987) stressed the importance and value of public scrutiny of competencies and considered such research to be a first step in the validation process. They noted, however, that additional research would be required to empirically validate the competencies before their ultimate validity could be determined.

Szymanski, Linkowski, Leahy, Diamond, and Thoreson (1993) conducted a survey with three groups (sampling frames) in order to validate and update rehabilitation counseling

accreditation and certification knowledge areas. The body of knowledge included in that study was developed using several techniques over an extended period of years, including job analysis, role and function, professional competency, and critical incident research.

An instrument was developed with 58 items and a response metric similar to the one used by Blackhurst et al. (1987). In addition, there were two open-ended questions designed to gather data about knowledge areas that were perceived to be required. Much like the results found by Blackhurst et al. (1987), the results of that study provided the researchers with data for a descriptive analysis of the perceived importance of the rehabilitation counseling knowledge areas. The authors concluded that the results offered support for the validity of the knowledge areas, but that, since the respondents were generally more experienced, the validity of the study was limited by “the degree that the sample may not be representative of less experienced rehabilitation counselors” (Szymanski et al. 1993, p. 120).

Finally, Lloyd and Heubesch (1996) discussed the utility and reliability of social validation research in the area of services for students with emotional or behavioral disorders. They were especially concerned that much research on social validity is conducted via survey on a limited sample or respondents who may have only minimal ability to provide informed opinions. This opinion echoed the observation of Gresham and Lopez (1996) relative to the importance of selecting participants carefully and determining the weight of their opinions.

Gresham and Lopez (1996) discussed two types of social validation research and the relative merits and limitations of each. First, the authors discussed determining social validity by comparison to empirical standards. Two difficulties with this measure of social validity are (1) the level at which the norms are trustworthy; and, (2) the time and effort that it takes to conduct this type of research. Though complex, these researchers considered this measure of social validity to be superior to the second type, subjective evaluation that is based on the opinions of consumers. The greatest concern expressed by Gresham and Lopez (1996) about this type of validity research was the question, *What if the consumer is wrong?* (p. 12)

Such concerns have implications for selecting sampling procedures when conducting survey research. Probability sampling, which produces a random sample of an entire population is generally regarded as producing the most statistically representative sample and, thus, results that are most generalizable to the entire population. Nonprobability samples do not

produce random samples. Samples identified through nonprobability sampling include convenience sampling, in which participants readily available to the researchers are included in the sample, and purposive sampling, in which participants are selected for inclusion in the sample for a specific purpose. One example of purposive sampling is expert sampling, in which the participants are selected because of their acknowledged expertise and experience in the field under study (Hasselbring & Lahm, 2000). An advantage of purposive sampling is that the probability of data relevant to the field being studied increases with the expertise of the respondents; however, a disadvantage of purposive sampling is that the generalizability of the results to the broader population of all who may be affected by the issue under investigation may be open to question.

Summary. The articles and studies reviewed in this section indicate that the determination of validity is important and that survey research is a useful means for obtaining data related to certain types of validity. Survey research is useful for determining social validity and content validity, as the data sought are based on social and expert judgment. The literature also indicates that caution must be used, however. In order to gain data that are informative and useful, four things appear to be of paramount importance: (1) careful selection of appropriate subjects who have the information needed by researchers and are willing to share it; (2) careful design of the survey instrument so that it gathers the data needed for interpretation; (3) careful analysis of the data so that conclusions can be tied as concretely as possible to the data that are collected; and, 4) an understanding of the limitations of this type of research and the need to follow it with empirical studies whenever possible.

Summary of the Review of the Literature

This review provides evidence that currently available services to students with disabilities are inconsistent and that they vary significantly from district to district, classroom to classroom, and service provider to service provider. The research also identifies pockets of excellence; however, the inconsistency illuminated by the research points to the need for guidance in assuring that assistive technology services of quality are available on a much broader scale. At least three issues were uncovered that appear to impact the development, provision, and evaluation of assistive technology services of consistently high quality. First, the issues and processes related to assistive technology are complex and interact with all other educa-

tional processes. Second, concerns about assistive technology services tend to be closely aligned to the differing perspectives, attitudes, knowledge, skills, and levels of preparedness of the many people who have a role in the consideration, development, delivery, and evaluation of assistive technology services in school settings. Finally, the research indicates that a need exists for a validated guide to support a systematic way of planning, developing and delivering assistive technology devices and services.

Though the existence of QIAT has served as a tool for providing this guidance, it has remained important to determine the validity, importance, and utility of QIAT beyond that which was established through the initial development and formative review processes. The review of the literature about social and content validity indicated that any instrument, or set of descriptors, designed to guide the development, implementation, and evaluation of assistive technology services of quality should have social and content validity. Further, it indicated that the degree of social validity of a document could be determined by the degree to which experts agree that a set of descriptors is needed and that content validity could be determined by the degree to which experts agree that the content is important, accurate, and inclusive.

The literature in the third section of this review pointed to the utility of survey research as a means for determining social validity through expert review. In order to determine the content validity of QIAT, this investigation determined the degree to which expert participants from each of the five groups for which QIAT is intended agreed that each indicator within QIAT was important and indicative of quality assistive technology services. Finally, as a further measure of social validity, the investigation determined the degree to which experts in each group agreed that QIAT, in its entirety, would be useful to other people within that group.

Research Questions

The following research questions were addressed in this investigation.

1. What is the perceived need for assistive technology quality indicators?
2. How important is each indicator included in Quality Indicators for Assistive Technology Services?
3. How clear is the intent statement for each indicator included in Quality Indicators for Assistive Technology Services?

4. What additions or modifications should be made to the Quality Indicators for Assistive Technology Services?
5. What is the perceived usefulness of the Quality Indicators for Assistive Technology Services?

The first and fifth questions were directly related to the establishment of the social validity of QIAT to people in the five groups for which it was intended. The second, third and fourth questions solicited information about the content validity of QIAT. The complete set of indicators contained in QIAT is located in [Appendix A](#).

Definition of Terms

For the purpose of this study, the following terms were defined:

- assistive technology devices: systems of low-tech, medium-tech, and high-tech tools that support the communication, participation, and productivity of students with disabilities
- assistive technology experts: respondents in this study who are persons with recognized experience and expertise in the development, provision, and evaluation of assistive technology services from one of the five identified groups for which QIAT is intended: higher education personnel; state and national assistive technology leaders in educational settings; local education agency assistive technology leaders; consumers and their family members; and, policy developers and monitors
- assistive technology services: services provided by school districts in order to address the assistive technology needs of students with disabilities so that they are able to benefit from a free appropriate public education (e.g., functional evaluation, acquisition and maintenance of devices, coordination of services that contribute to a student's use of assistive technology devices, training for students, families and staff, and others)
- consumers: those who receive assistive technology services or stand to benefit from such services
- content validity: the degree to which the content of a Quality Indicator is judged to be important to, and descriptive of, the provision of quality assistive technology services

- intent statement: a supplemental statement related to each quality indicator that is designed to assist with the understanding and implementation of the indicator
- quality indicator: an observable manifestation of the presence of a critical element of assistive technology services that can be used to guide development and provision of services and to determine the merit or worth of services
- Quality Indicators for Assistive Technology Services (QIAT): the specific set of quality indicators developed by the QIAT Consortium (See Appendix A)
- service providers: multidisciplinary school personnel who are involved in the provision of assistive technology services; may include administrators, teachers, related service providers, social services personnel, appraisal personnel and technology specialists
- social validity: the assessment of significance, acceptability, and importance of an idea, strategy, or intervention to the people who may be affected by its implementation

Chapter III

Methodology

This investigation had two primary purposes: (1) to describe the development of the Quality Indicators for Assistive Technology Services (QIAT); and (2) to conduct an expert review to evaluate the perceived need, importance, clarity, and utility of QIAT by experts within each of the five groups for whom QIAT is intended. The following section describes the development process and the procedures for evaluating the importance, need, clarity, and utility of QIAT.

Development of the Quality Indicators for Assistive Technology Services (QIAT)

QIAT is a set of descriptors of critical elements related to major functions involved in the provision of assistive technology services. Quality indicators have been developed for six assistive technology functions: Administration, Consideration, Assessment, Documentation in the IEP, Implementation, and Evaluation of Effectiveness. The primary purpose of QIAT is to support the development, provision, and evaluation of assistive technology services for students with disabilities, regardless of where the services are provided or the specific model used to support service provision. Further, QIAT supports the idea that the services should address not only the needs of students, but also the needs of family members and school personnel who work with students who require assistive technology devices and services to receive a free appropriate public education. This section details the activities involved in the development and dissemination of QIAT.

Initial Development

In the summer of 1998, the investigator and a colleague, Jane Korsten, convened a meeting of 14 assistive technology service providers from across the nation to share common concerns about the complexity of issues and processes related to assistive technology training and service delivery. Although each individual had a history of expertise and leadership in assistive technology in K-12 school settings at national, state, or local levels, the group was, by intention, geographically and professionally diverse. At the time of this investigation, the group—known as the QIAT Consortium—consisted of 15 people. Their names, affiliations, and the perspectives they brought to the development and continuing leadership of QIAT are included in Appendix B.

The original purpose of the meeting was to discuss the possibility of aligning assistive technology professional development efforts across the country. However, early in the discussions, group members confirmed that there were no consistent, clearly defined descriptors of quality assistive technology services to serve as the guide for alignment of their professional development efforts. When faced with this void, they determined that it would be useful if they focused their efforts on the development of a set of descriptors that could serve as unifying guidelines for quality assistive technology services that would be widely applicable, regardless of geographic location or service delivery model. They believed that, when expanded and completed, these descriptors could be used to:

1. Guide school districts in the development and provision of quality assistive technology services aligned to federal, state, and local mandates;
2. Guide assistive technology service providers in the evaluation and improvement of their services;
3. Guide consumers of assistive technology services in the selection of adequate assistive technology services;
4. Guide university faculty and professional development providers in the delivery of programs that develop knowledge and skills needed to provide quality assistive technology services; and
5. Guide leaders in the development of regulations and policies related to the use of assistive technology in education.

Development Process

In preparation for their work, the development team explored the work of the Joint Committee on Standards for Educational Evaluation (1994) and decided to base their work on that model. The Joint Committee grouped their standards according to the categories of *Utility*, *Feasibility*, *Propriety*, and *Accuracy*. The QIAT Consortium decided that their work would be most readily understood and accessible if the groupings were more closely aligned to the major functions associated with the delivery of assistive technology services. They did, however, tentatively adopt the word *standards* as a label for the descriptors and agreed to imbed utility, feasibility, propriety, and accuracy into each of the areas they defined.

Extensive group processes resulted in the selection of four areas for immediate development. They included assistive technology: (a) consideration, (b) assessment, (c) implementation, and (d) evaluation of effectiveness. Small groups developed draft sets of descriptors for specific areas and presented them to the larger group. Based on feedback, the descriptors were refined until there was consensus that the descriptors provided an adequate place to begin.

Dissemination, Public Response, and Input

Dissemination of the QIAT work began immediately after the initial drafts were developed. In order for the QIAT work to be valuable in a range of settings, participation in the continuing work was required by people with a wide range of perspectives on assistive technology located in different parts of the country. In addition to individual sharing by members of the original development team, four primary tools were used to invite and engage participation in the on-going work. They included interactive conference presentations, development of the QIAT web site and listserv, QIAT Summits, and publications in consumer and research journals (Bowser, Korsten, Reed, & Zabala, 1999; Zabala et al., 2001).

Interactive conference presentations. One of the primary means of sharing and expanding the work begun by the QIAT Consortium was through interactive sessions at local, state, national, and international conferences (see Table 3.1 Note: Tables are located at the end of each chapter). Over 2000 participants in such sessions were offered the opportunity to provide formative evaluation data that would be used during continuing development and to become actively involved in QIAT development activities.

During those interactive sessions, participants received information about the QIAT work, engaged in critical discussion of the work, and provided oral and written input into the continuing development process. Though the written input was open-ended, three questions were used to shape responses:

1. Is there a need for quality indicators?
2. How would you use the quality indicators in your setting?
3. How would you modify the existing indicators?

Based on very early input from session participants, the name of the work was changed from *standards* to *quality indicators*. This was done because the term *standards* had different meaning and implications in different states, and appeared to elicit prejudicial reac-

tions to the work in some cases. Throughout the development of QIAT, the thoughts and ideas gained from participants at conference sessions served as formative evaluation data that informed the revision and continued development of the QIAT. In addition, those data also helped determine the perceived value of QIAT to people who attended each session. Based on over 2,000 written responses and many hours of collegial conversation, it was determined that QIAT could provide useful information to those concerned with the development and delivery of quality assistive technology services.

QIAT Web site. One of the most active methods for sharing and participating in QIAT work has been through the QIAT Web Site, hosted by the University of Kentucky and located at <http://www.qiat.org>. Initially, the website contained drafts of the QIAT indicators, a historical perspective on the work, upcoming participation opportunities, and an invitation to join the QIAT listserv. The QIAT List was developed to facilitate widespread engagement in collegial conversation about the indicators and topics related to their continued development.

As QIAT work progressed, the QIAT Web site was expanded to include copies of the quality indicators in various stages of development, searchable archives of all messages sent through the QIAT List, detailed information about the QIAT Summits, a section for research related to the QIAT work, and links to complementary resources suggested by QIAT participants. The QIAT List is powered by Listserv software and is hosted by the University of Kentucky. List discussions evolved to focus not only on the quality indicators, but also on a range of topics that pertain to quality assistive technology services, such as report writing, research, staff qualifications and certification, device specifics, and state standards. The investigator has managed the QIAT List since it was established in the fall of 1998. As of October, 2004, it is estimated that over 10,000 messages have been posted to the QIAT List which has more than 950 participants.

QIAT Summits. QIAT also was shared through QIAT Summits. The Summits provided a way to expand the number of people who participated in the actual development and writing of the Quality Indicators. Summits were face-to-face work sessions that took place in Kansas City, Missouri, in 1999, 2000, and 2001, and in Portland, Oregon, in 2003. Anyone interested in assistive technology services was invited to attend. Most participants were active in discussions on the QIAT listserv and many had attended QIAT sessions at conferences.

Summit participants were representative of all groups identified as potential consumers of QIAT work, including consumers, service providers, administrators, higher education professionals, and policy makers.

QIAT Summits consisted of a series of sessions during which participants worked collaboratively in large and small groups to:

1. Deepen understanding of the purpose, scope, and potential uses of the quality indicators;
2. Review quality indicators to determine changes needed, if any, to move toward comprehensive coverage;
3. Revise, refine, and expand upon the quality indicators, as indicated by collegial conversation and conference feedback; and
4. Discuss, develop, or plan for tools that could assist with implementation of the quality indicators.

Details concerning the specific activities, participants, and results of QIAT Summits are available on the QIAT Web site, as is information about future QIAT Summits, and recent QIAT developments.

Procedures for Determining Need, Social Validity and Utility of QIAT

The following section describes the procedures that were used in the current investigation. The research was conducted through self-report survey methodology, similar to that used by Blackhurst, MacArthur, and Byrom (1987). Instrument design and sampling were guided by the recommendations of Gay (1996), Gresham and Lopez (1996), Lloyd and Heubesch, (1996), Rymarchyk (n.d), and Wolf, (1978). Descriptions of the subjects, sampling procedures, instrumentation, data collection procedures, and analyses are the focus of the remainder of this chapter.

Participants

Subjects in this investigation were invited to participate in the evaluation of QIAT. They represented a non-proportional, purposive sample of individuals with knowledge and experience in assistive technology, as illustrated in the work of Hasselbring and Lahm, (2000). The goal for the development of the sample was to include a minimum of 20 participants from each of five subgroups:

1. Consumers of assistive technology, a family member of a consumer, or other who works primarily with consumers and families;
2. Assistive technology leaders who coordinate and/or provide assistive technology services within local or regional education agencies;
2. Assistive technology leaders who influence, develop, coordinate, and conduct services at state and national levels;
3. Assistive technology leaders who develop and conduct programs at colleges and universities to prepare personnel for K-12 education agencies; and
5. Leaders who influence, develop, monitor, or evaluate regulations, policies, or guidelines related the use of assistive technology in education or other agencies.

Each potential participant was initially identified by one, or more, of five methods:

1. Nomination by a member of the QIAT Coalition;
2. Nomination by a member of the Technology and Media Division of the Council for Exceptional Children;
3. Nomination by another participant in the survey; or
4. Self-nomination.

Criteria for selection of participants. In order to qualify as a subject in the investigation, potential participants were required to have (a) greater than four years of experience with assistive technology and (b) endorsement as a leader by a member of the QIAT Coalition or a member of the board of the Technology and Media Division of the Council for Exceptional Children. More specific criteria for leadership differed somewhat within each of the subgroups due to varying interests and responsibilities associated with each. However, each individual invited to participate in the study met at least two of the following criteria:

1. Long-time advocate for self, students, or other consumers of assistive technology;
2. Active member of a professional or family association related to assistive technology;
3. Author of articles related to assistive technology;
4. Presenter at professional or family conferences on issues related to assistive technology;
5. Holder of an advanced degree in assistive technology or a related field; or

6. Holder of the Assistive Technology Professional (ATP) credential issued by the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA).

Recruitment of participants. Prospective reviewers were e-mailed a letter that explained the study, included an invitation to participate, and provided a link to an online reply form. Appendix C contains a sample of the recruitment letters sent to participants in each of the targeted groups. Prospective participants were asked to reply to the invitation, indicating whether or not they were interested in participating. Those electing to participate were asked to indicate their preference for responding to either a Web-based electronic version of the survey or a traditional print version. A series of three follow-up requests were sent at 10 day intervals to prospective participants who did not reply. In order to identify a balanced sample of the individuals across the five subgroups of people willing to participate, additional nominations were solicited and the process repeated until the total sample included at least 20 from each subgroup and no more than 26 from any one group.

Assurances of confidentiality and anonymity. Confidentiality of responses was assured to the participants in the letter of invitation. Because of the nature of the groups of participants and the fact that the number of experts in assistive technology is small, many respondents in this research were personally and professionally known to the researcher. To encourage candid responses, the following steps were taken to ensure anonymity of participants:

1. An alphanumeric code were assigned to each participant by a research assistant who kept track of which surveys had been sent and received;
2. Surveys completed online were identified only by their numerical code and surveys submitted by mail were stripped of identifying information by the research assistant before passing the data to the researcher; and
3. All completed surveys in each data format were entered into the Web-based version for tabulation and analysis.

Description of participants. The invitation to participate in this research was accepted by 128 individuals. Completed surveys were received from 120, for a return rate of 93.75%. Subject response data are presented in Table 3.2.

Many participants indicated on their response to the invitation to participate that their interests and responsibilities spanned several of the groups targeted in the survey and stated that, though they would be responding primarily from the perspective of the group to which they were assigned, their responses would be impacted by the experiences, interests, and responsibilities they shared with other groups.

The mean years of experience with assistive technology for participants in this study was 15.7, with a range of 4 through 40, and a standard deviation of 6.9. The distribution of years of experience is displayed in Table 3.3.

The responsibilities of the participants in this study varied according to their interests, and professional preparation. Fifty-nine of the 120 participants (45.7%) held the title of Assistive Technology Specialist in one or more of several settings (e.g., individual schools, school districts, regional education service centers, university-based programs, entities that provided services to adults, or across settings as national consultants). Thirty participants (25%) were professors and researchers with assistive technology responsibilities at universities. Eleven participants (9.2%) were primarily advocates for the use of assistive technology and other services needed by individuals with disabilities. Several people in this group advocated professionally (e.g. attorney, parent training director) while others were more personally focused on self-advocacy or advocacy for a family member. Seven participants (5.8%) were administrators or researchers in not-for-profit organizations while an additional 10 (8.3%) were involved in state or federal projects such as Tech Act projects. Two participants (1.7%) were governmental project officers who oversaw a variety of projects related to assistive technology service provision. The remaining participant (0.8%) was a school district special education director who personally spearheaded assistive technology efforts in multiple districts. Though eight participants (6.6%) indicated limited experience working as part of a team, 112 participants (93.3%) indicated considerable experience in working collaboratively with others on assistive technology issues.

Every participant in the study was a high school graduate and most had completed post-secondary education. Associate degrees were held by four participants (3.3%) and bachelor's degrees by an additional 16 (13.3%). Ninety-five (79.2%) participants held advanced university degrees, with 61 (50.8%) holding master's degrees and 34 holding doctoral degrees

(28.3%). Nineteen (15.8%) participants were holders of the RESNA Assistive Technology Practitioner credential.

Of the 120 participants in this study, 22 (18.3%) indicated that they had initially become interested in assistive technology because of their own disability or the disability of a family member. The remaining 98 (81.7%) initially became aware of assistive technology through some aspect of their personal experiences during professional preparation and activities, though several indicated that personal or family experience with a disability had honed their interest. The range of professional preparation through which participants developed initial interest in assistive technology included psychology, physical therapy, occupational therapy, speech/language pathology, rehabilitation engineering, rehabilitation, and special education. The range of personal and professional activities through which assistive technology interests were developed included rehabilitation services to adults, special education, instructional technology, advocacy, federal and state-funded research projects, disability services to post-secondary students, services to individuals who were blind or had visual impairments, and higher education program development.

Although a number of participants indicated that their initial interest in assistive technology was developed during their professional preparation, 74 participants (61.7%) indicated that they had no formal training in assistive technology. The inclusion of assistive technology formal coursework for the remainder of the participants varied greatly. Only one participant (0.8%) indicated formal preparation in assistive technology as an undergraduate, while 10 (8.3%) participated in one or two graduate courses with assistive technology as a focus. Eight participants (6.6%) reported three or four graduate courses and 16 participants (13.3%) reported that assistive technology was a major focus of their master's, doctoral, or post-doctoral studies. Eleven participants (9.2%) had taken part in advanced training programs in assistive technology or rehabilitation technology that were not degree-based.

Without exception, participants indicated that their primary sources of continuing development in assistive technology included personal experience, self-study, and attendance at conferences and workshops in which they were taught by professionals, vendors, and others with relevant professional and personal experiences. Several indicated that they also had taken

online courses or participated in collegial discussions with others on internet-based discussion lists such as the QIAT Listserv.

Instrumentation

The survey questionnaire used to collect data during this investigation was available in two formats: a Web-based electronic version and a traditional print version. All surveys were coded with a unique alphanumeric code to assist with tracking and data analysis. The identification number served as the sign-in ID that provided access to the Web-based version of the survey. All responses were anonymous.

General directions at the beginning of the survey instructed participants to read an introduction that included QIAT purposes, a list of intended users, and three important basic assumptions that underlie the entire body of QIAT work. Specific directions for entering demographic information and completing the rest of the survey followed the introduction.

The instrument contained questions with a forced-choice metric designed to measure the participant's perception of:

1. The need for quality indicators by the group represented by the respondent;
2. The importance of each of the Quality Indicators for Assistive Technology Services (QIAT);
3. The clarity of each Intent Statement as it pertains to the corresponding Quality Indicator; and
4. The perceived utility of the Quality Indicators for Assistive Technology Services (QIAT) by the group represented by the respondent.

For questions related to importance, need, and utility, four choices were provided. The choices provided for *importance* were: 1) very important, 2) somewhat important, 3) not important, and 4) importance unknown. The choices for *need* were: 1) strong need, 2) some need, 3) no need, and 4) need unknown. The choices for *utility* were: 1) very useful, 2) somewhat useful, 3) not useful, and 4) usefulness unknown. Two choices were provided for participants to rank their perceptions of the *clarity* of each intent statement: 1) clear and 2) unclear.

The instrument also contained text boxes following each ranking. Participants were encouraged to record comments and recommendations for changes or additions to QIAT in the text boxes, but their use was optional.

Before distribution to the subjects, the questions and organization of the instrument were reviewed by the members of the researcher's doctoral committee, University of Kentucky faculty and staff with expertise in assistive technology, and the QIAT Consortium. This review was conducted to determine the clarity and appropriateness of the items included on the survey. After making suggested revisions, the researcher conducted a pilot test of the instrument with four advanced doctoral students—two with expertise in assistive technology—in the distance education leadership program at the University of Kentucky. Additional modifications to the instrument were made to clarify directions and correct typographical errors. Copies of the instruments are included in Appendix D.

Data Collection

Originally, data collection was planned for July and August of 2002. However, because of extenuating circumstances encountered by several participants, data collection continued through mid-October of 2002. Upon receipt of the message that an invited leader had accepted the invitation, the following procedures were used to collect data during the investigation:

1. The researcher entered the participant's name and subgroup affiliation into a record and passed the record to the research assistant.
2. The research assistant assigned a unique alphanumeric code to the participant and noted the preferred format for response indicated by the participant. If the participant preferred to respond on paper, a numbered survey and reply envelope were sent to the participant by traditional mail along with directions for completing and returning the survey. If the participant preferred to respond electronically, an e-mail message containing directions and the identification number was sent to the participant along with the Web address where the survey was located and directions for completion and submission. A sample of the email is located in Appendix C.

3. Participants followed directions to complete and submit the survey in their preferred format. The Web-based system kept track of which surveys had been completed and submitted and which surveys were still outstanding. The print surveys were returned to the research assistant who logged in the number, removed any explicitly identifying information, and sent the surveys to the investigator. The investigator entered the data gathered on the print surveys into the online system.
4. At 10-day intervals, the research assistant sent reminder messages to participants who had not yet completed and submitted surveys.
5. As surveys were submitted, all responses were automatically added to a master database that served as the repository for all information gathered during the investigation.

Analysis of the Results

Two types of data were collected by the survey instrument used in this investigation. Quantitative data were collected by a forced-choice rating of each item in the survey. Most items offered four responses, though those concerned with the clarity of intent statements offered only two. Participants were asked to choose the response for each question that most accurately reflected their judgment related to the item. Qualitative data were analyzed by tabulation of the responses from the entire sample and calculation of the percentage of responses that were received for each alternative in the response metric. The results of the investigation included the number and percentage of participants who selected each response. Those data are reported and analyzed in the following chapter.

The second type of data collected were optional reviewer comments on each item and optional suggestions for additions or revisions to QIAT. In addition to simple quantitative tabulation by item, comments were analyzed qualitatively. During qualitative analysis, comments were divided into four major categories. The first category included comments that were general comments specific to an indicator or area, but did not involve action, such as “This is really helpful work.” The second category included comments that were generally related to assistive technology practice as the participants viewed it, such as “This is not typically happening in the field.” The third category included comments that related to the use of QIAT by the field and included suggestions for future development of materials to support the

implementation and use of QIAT, such as “Parents need documents to help them apply this.” The final category included suggested action items directly related to revision or further development of the areas, quality indicators, and intent statements included in QIAT, such as “Consider revising the intent statement.” Once the comments were sorted into categories, visual inspection was used to identify common themes across groups, as well as similarities and differences among groups.

The results of those analyses are presented and discussed in the following chapter.

Table 3.1: QIAT Interactive Conference Presentations

Conference/Meeting	Location	Participants	Date
Kansas AT Conference	Kansas	50	9/98
Closing the Gap	Minnesota	260	10/98
Wisconsin Tech Access	Wisconsin	250	4/99
Kansas AT Conference	Kansas	50	9/99
QIAT Summit	Kansas	40	8/99
Closing the Gap	Minnesota	180	10/99
Assistive Technology Industry Association	Florida	200	10/99
Maryland Assistive Tech Network	Maryland	150	12/99
Technology and Media Division of the Council for Exceptional Children	Wisconsin	118	1/00
Council for Exceptional Children	Victoria, BC Canada	85	4/00
Rehabilitation Engineering and Assistive Technology Society of North American	Florida	150	6/00
QIAT Summit	Kansas	27	7/00
Kansas Assistive Technology	Kansas	50	9/00
Closing the Gap	Minnesota	150	10/00
Delaware Inclusion Conference	Delaware	50	11/00
Assistive Technology Industry Association	Florida	100	1/01
QIAT Summit	Kansas	34	7/01
QIAT Summit	Oregon	60	7/03
Total Participants		2,004	

Table 3.2: Participant Response Rate by Group

Group	Recipients	Respondents	% Return
Consumers/Family Members	25	23	92.0
District/Regional Service Providers	25	23	92.0
State/National Service Providers	26	24	92.3
Higher Education Personnel	25	24	96.0
Policy/Guidelines Personnel	27	26	96.3
Total Participants	128	120	93.8

Table 3.3: Participants' Years of Experience with Assistive Technology

Years Experience	N	%
4 – 9	24	20.0
10 – 14	26	21.7
15 – 19	37	30.8
20 or more	33	27.5

Chapter IV

Results and Discussion

The purpose of this section is to describe and interpret the results of this investigation. As discussed in the methods section, a formative review of each of the 39 quality indicators and intent statements in six areas was conducted by members of five groups with expertise and experience in assistive technology. These experts provided their perceptions of the need for quality indicators in general and evaluated each quality indicator based on their perceptions of the importance of the quality indicator to people with perspectives and responsibilities similar to their own. They evaluated the clarity of each intent statement based on their perceptions of the ability of the intent statement to further understanding of the corresponding indicator. Finally, they provided their perceptions of the usefulness of the specific information contained in QIAT to people with interests and responsibilities similar to their own. Comments included the participants' thoughts on QIAT, the state of assistive technology practice in general, suggestions for additions or modifications to QIAT, and suggestions for the future development of additional materials and training that support the application and use of QIAT.

This investigation sought to answer the following research questions:

1. What is the perceived need for assistive technology quality indicators?
2. How important is each indicator included in Quality Indicators for Assistive Technology Services?
3. How clear is the intent statement for each indicator included in Quality Indicators for Assistive Technology Services?
4. What additions or modifications should be made to the Quality Indicators for Assistive Technology Services?
5. What is the perceived usefulness of the specific information contained in Quality Indicators for Assistive Technology Services?

Following the results and discussion of the first research question, research questions two, three, and four will be discussed area by area, beginning with Administrative Support, and continuing through the areas of Consideration, Assessment, Documentation in the IEP,

Implementation, and Evaluation of Effectiveness. Within each area, results will be presented and discussed for the general area and for each quality indicator and intent statement pair contained in that area. The fifth research question will be discussed at the conclusion of the review of the quality indicators. The fourth research question will be discussed throughout this chapter, and specific recommendations for revisions presented at the conclusion of the discussion of each area. Suggestions for future development will be presented in the following chapter.

Research Question 1: Need for Quality Indicators

The review of the literature included in this study and the formative evaluation involved in the development of Quality Indicators for Assistive Technology Services (QIAT) indicated that there is a need for quality indicators for the development and provision of assistive technology services. However, prior to this investigation, there had been no data that indicated the level to which leaders in assistive technology with differing interests and responsibilities perceive quality indicators to be needed. Research Question One sought to determine the level to which the participants in this study believed there was a need for standards of quality to be identified for assistive technology services.

As shown in Table 4.1, 99.2% of the participants in this investigation thought that there was a *strong need* (81.7%) or *some need* (17.5%) for standards of quality to be identified for assistive technology services. One participant (8%) in the Consumers and Families group ranked this item *no need*; however, that participant also conceded in an accompanying comment that “*some need may exist, even if only to help define when ‘consideration’ has occurred.*” Table E1 in Appendix E contains the rankings of this item by respondent group.

Forty-six participants (38.3%) made comments on their perceptions of the need for quality indicators. Thirty-two (69.6%) comments were general comments on need and the remaining 14 comments (30.4%) related to the identification or future development of training and materials that address this need.

Responses to this question clearly indicated that participants in this study believed that there was a need for measures of quality to guide the development and provision of quality assistive technology services in school settings at all levels of the organization. Comments in-

cluded reasons why quality indicators were needed by people in each of the groups represented in this study. A sample of the comments included:

- *I think indicators are essential to help districts have standards by which they can judge their practices. If the indicators represent a shared vision then they are standards for districts to achieve and be adhered to by all. (Higher Education AT Faculty)*
- *I think that quality indicators will drive districts to develop the components needed to make AT an integral part of their programs. They challenge people to rise to the highest level of implementation. (Consumers & Families)*
- *They would help in policy and legislative and training work. (AT Policy Leaders)*
- *Quality indicators are essential for accountability at the practitioner level as well as at the administrative level. (State & National AT Leaders)*
- *They can be used as a means of validating solid practice and as a means to motivate improvement. (AT Policy Leaders)*
- *Speaking from my parent point of view, quality indicators are extremely important because most parents/students do not have a clue what to ask for when writing goals, etc. (Consumers & Families)*
- *Quality indicators are essential for accountability at the practitioner level as well as at the administrative level. (State & National AT Leaders)*
- *They can be used as a means of validating solid practice and as a means to motivate improvement. (AT Policy Leaders)*
- *We definitely need a sound set of quality indicators set out as a model for educational institutions, who do not always have trained individuals available to implement AT use in schools. We do not have the time or the training/knowledge to develop these in each school or district. These need to be developed by a group of highly trained and experienced individuals. (District & Regional AT Leaders)*
- *For people with responsibilities similar to mine, a list of quality indicators provides: (a) a valuable guide in developing programs, (b) a useful resource in teaching others, (c) a valuable guide in evaluating programs, (d) a handy memory prompt and succinct summary of the state of the art for use in presentations, and*

(e) an important resource to refer to and distribute to teachers, speech therapists, and school administrators. For those involved in developing and implementing programs, this is extremely valuable. (Higher Education AT Faculty)

- *The law mandates that we consider AT and provide devices and services to children who need AT solutions. Unfortunately, the law is so broad that this task is easier said than done. Having quality indicators is essential to effective AT service delivery. They provide a frame of reference and a way for us to measure the quality of our efforts. The better and more systematic we are at addressing AT needs, the more likely we are to improve student outcomes. (State & National AT Leaders)*
- *There is a strong need for the indicators because: 1) people shouldn't have to waste their time "reinventing the wheel" 2) persons new to the field need to know what constitutes quality services, and 3) students and their families have the right to receive quality AT services that are consistent across the usual school boundaries (districts, states, etc.). (Higher Education AT Faculty)*

Other comments on this question pertained most directly to the need for the future development of materials and training that would meet the application of quality indicators to address the identified needs. A sample of comments included:

- *Information is needed so parents are more informed, schools are more informed and services are more reliably and thoughtfully considered and provided. It's a shaky thing. I think people would welcome a document to help. Of course, people won't worry about navigation if they don't consider it terribly important to provide quality AT services. (Consumers & Families)*
- *I think there needs to be a next step. Once there are quality indicators what do you do to get where you want to go? (District & Regional AT Leaders)*
- *Indicators need to be linked to competencies and standards established for educators AND therapists. (Higher Education AT Faculty)*

- *I think there is a strong need. I think it will be important to go beyond indicators to develop examples, best practices, etc. based on the indicators.* (AT Policy Leaders)
- *The more examples of effective processes provided the better.* (State & National AT Leaders)

In summary, analysis of these data indicates that participants in this investigation believed that there is a need for quality indicators to guide the development and provision of assistive technology services at all levels of educational organizations. Further, participants from every group represented believed that there is a need for the development of materials that support the application of quality indicators by people with varied assistive technology interests and responsibilities. Suggestions for ways in which the development of these materials might be addressed by the QIAT Consortium appear in the following chapter.

Research Questions 2, 3 and 4: Importance, Clarity, and Revisions

Research Questions Two, Three, and Four sought to determine the participants' perceptions of the importance of each quality indicator contained in QIAT, the clarity of each intent statement and to gather suggestions for revisions to QIAT. The results for each of these questions are presented and addressed in the following sections of this chapter.

Quality Indicators for Administrative Support of Assistive Technology Services

The quality indicators contained in the area of Administrative Support define the areas of administrative support and leadership needed for the development, delivery, and maintenance of assistive technology programs. They are related specifically to policies, procedures, and other supports necessary to sustain effective assistive technology programs.

As shown in Table 4.2, greater than 97% of the participants in this study ranked each of the quality indicators in this area as either *somewhat important* or *very important*. Each of the intent statements in this section was ranked as *clear* by greater than 80% of the participants. Tables E2 through E8 in Appendix E contain rankings of these items by group. Although these data indicate some range in the frequency that each quality indicator was ranked as *very important*, and the frequency that each intent statement was ranked as *clear*, a large majority of participants in each group viewed all of the quality indicators and intent state-

ments in this section as important to the development and provision of quality assistive technology services in schools.

Forty-two participants (35%) made comments on the area of Administrative Support. Eleven (26.2%) comments were related to practice, five (11.9%) were comments on the content of this indicator, eight (19%) were comments on use, and the remaining 18 (42.9%) were potential action items that directly suggested modification or additions to this area.

A sample of comments on the content of this item that reflect the importance of this indicator, followed by the participant's group, includes:

- *Nice job! With clear administrative frameworks, everyone can be clear on their responsibilities and families will know what to expect and how to precede in their quest for quality AT services w/in the educational system. (Consumers & Families)*
- *These quality indicators are very strong and helpful overall. They can be good guides for administrators without being threatening or condescending. Also, they are written in common sense language, accessible to all administrators regardless of previous AT knowledge. (State & National AT Leaders)*
- *This is crucial information for those who administer funds and are responsible for successful outcomes. (District and Regional AT Leaders)*

Comments by participants in the Consumers & Families group reflected the importance of assistive technology to students and the role that families play in decision-making and support. A sample of those comments includes:

- *I can't stress enough that parents need access to this same kind of information. This is an important part that is often missed because it is considered internal information.*
- *It seems that in every district my son has been enrolled in—with the exception of one—I have had to educate the special education directors and principals regarding the law and particular equipment. I think when more knowledge and policies are in place at the admin level, the process of considering and procuring AT will be less stressful and time consuming.*

- *The process of learning about and utilizing assistive technology appropriately for families is currently “dependent” on service providers and schools so any bias as to effectiveness is passed on the consumer/family.*
- *These indicators would make the difference in many schools for many students. Access to training for parents/family is such a missing piece in most current systems.*

Several participants expressed a need for supporting tools and documents that would assist people who seek to use QIAT to support continuous improvement of assistive technology services. A sample of those comments included:

- *I use the quality indicators on a regular basis in my training as well as in my service provision. These that apply to administrators are so important. However, it has been difficult to get administrator “buy in” It would be great to have some examples of good outcomes related to these -- I think that would result in some administrators seeing it as “doable”. (Higher Education AT Faculty)*
- *A scoring of some sort, with a means of prioritizing what we need to work on (setting up an easy action plan) would probably help with the marriage of regular and special education. (District & Regional AT Leaders)*

A comment by a participant who has conducted district training on QIAT suggested a change in the order in which the Administrative Support area is included in the document.

- *When using QIAT with school staff I think having the administrative support (section) first was not the best order to gain the interest of most classroom staff. Can sections be interchanged? (District & Regional AT Leaders)*

This last comment supports the observations of others who have provided training on how to use QIAT as a tool for self-assessment and planning for continuous improvement of assistive technology services. It has been noted that service providers and family members who are typically involved in such training often have difficulty when addressing the area of Administrative Support. Service providers generally have the professional ability to make changes in how some of the quality indicators in other areas are addressed when providing services to individual students. However, although they may have some influence over the large, systemic issues addressed in the area of Administrative Support for Assistive Technol-

ogy Services, they typically feel that they have little power to change them. (Personal communications, 2001-2002).

Although a clear definition of assistive technology devices and services, as defined by federal legislation is critical, QIAT is not intended to be a stand-alone document that contains all of the resources needed to develop and maintain quality assistive technology services. Rather, QIAT intends to encourage people to seek out, gather or develop, and communicate what is needed to assure that indications of quality are identifiable and explainable within their own customary environments and service delivery models. The introduction to QIAT states that an underlying assumption that applies throughout QIAT is that “ALL assistive technology services developed and delivered by states or districts are legally correct according to the mandates and expectations of federal and state laws and are aligned to district policies.” Although the assumption could be made that the same federal policies and regulations apply to all users of QIAT and should be included in the QIAT document, that is not the case. State laws and district policies related to assistive technology vary significantly. Additionally, QIAT is being adapted and used in Canada, New Zealand, and Scotland, and may well be, to some degree, in use in other countries where national assistive technology policies and regulations vary greatly from those in the United States. Thus, laws and policies must be included in documents specifically developed for the agencies to which they apply rather than in a document like QIAT that is intended to be applicable regardless of geographic location or service delivery model.

Other comments that appeared in this section were specifically related to one of the quality indicators and intent statements within this area. Those comments have been included in the analyses for the items with which they are associated and are addressed in those discussions.

The quantitative and qualitative data gathered in the overview of this area provide the means to draw several conclusions. First, greater than 97% of the participants in this study found the quality indicators in this area to be important to the provision of assistive technology services and greater than 87% found the intent statements to be clear. Second, although there is a high rate of agreement on importance, comments and questions indicate the need for some revision to the area to add further clarity to QIAT for current and potential users. Third,

comments indicate a need for supporting tools that can assist potential users in their application of QIAT. Specific recommendations for revisions to each item in the Administrative Support for Assistive Technology Services section are contained in Table 4.3 at the end of this chapter. Suggestions for supporting materials and tools appear in the following chapter.

The remainder of this section presents and discusses the results related to the importance and clarity of each quality indicator and intent statement pair contained in the area of Administrative Support.

Quality Indicator and Intent Statement 1.

Quality Indicator: The education agency has **written procedural guidelines** that ensure equitable access to assistive technology devices and services for students with disabilities, if required for FAPE.

Intent: The education agency has clear written procedural guidelines that provide equal access to assistive technology devices and services for all students. Access to AT is the same for the student regardless of abilities, economic status or geographic location. All district personnel are familiar with the procedural guidelines.

As shown in Table 4.2, 100% of the participants in this study reported that written procedural guidelines that ensure equitable access to assistive technology were *very important* (96.7%) or *somewhat important* (3.3%). The corresponding intent statement was reported to be clear by 109 participants (90.8%) and unclear by 11 participants (9.2%). Table E2 in Appendix E contains the rankings of this item by respondent group.

Forty-two participants (36.7) made comments on Item QI-1. Four (9.5%) comments were general comments on this indicator, 17 (40.5%) were comments on practice, three (7.1%) were comments related to use of this indicator, and the remaining 18 (42.9%) were potential action items directly related to wording of this item.

Analysis of the comments on this indicator, practice, and use underscore the importance of written procedural guidelines. A sample of these comments includes:

- *Clearly written guidelines provide a consistent intent and message to all and get everyone on same page.* (AT Policy Leaders)
- *This is extremely important no matter where one works, but crucial in a large district where many are involved.* (District & Regional AT Leaders)

- *We've found that the written procedural guidelines help us. We have a process in place for referral, trial, and evaluation. ALL students follow this process. When it's in print for all, it seems less adversarial.* (District & Regional AT Leaders)
- *As with any policy or procedure, having staff knowledgeable of it is critical and providing EASY access to parents is also a critical component.* (Consumers & Families)

Though there was strong agreement on the importance of the quality indicator, two themes emerged in the comments that support the need for some revision in the wording of this item.

Participants from several groups expressed concern about the words “equitable” and “equal”. Representative comments included:

- *Equal is not the key word, rather it should be “appropriate” to the individual child which sometimes means one child gets “more” than another child.* (Consumers & Families)
- *“Equal” access to assistive technology devices and services for all students' can be interpreted as to say, “If Johnny gets a laptop, then my child gets a laptop, too.”* (State & National AT Leaders)
- *Equitable access implies non-discrimination along the dimensions we consider (e.g., ethnicity). The dimension of “abilities” opens a very interesting can of worms, and the wording of the QI itself doesn't clarify that ability/label/diagnosis should not be used as justification to deny access on a categorical basis.* (Higher Education AT Faculty)
- *Can you expand on the intent to clarify that all students need equal access, regardless of the severity of the disability, or words to that effect?* (Higher Education Faculty)

The second theme focused on “who” needed to know “what” about the guidelines, and the lack of specificity of the term “all district personnel are familiar”. A sample of the comments on this theme includes:

- *I'm not sure how realistic it is that ALL district personnel are familiar with guidelines. I think key specialists should be familiar with the guidelines, and personnel generally should have a basic awareness of guidelines. (AT Policy Leaders)*
- *All district personnel being familiar is essential. Some districts have written guidelines but do not make sure all staff are familiar with them (particularly new staff) or have easy access to them. (State & National AT Leaders)*

In summary, analysis of the quantitative data indicates that the quality indicator is considered to be highly important but that the intent could be clearer. Though greater than 90% of the participants indicated that the intent statement was clear, when the comments were added to the analysis, the combined data indicated the need for revisions to increase clarity. Recommended revisions are included in Table 4.3 at the end of this chapter.

Quality Indicator and Intent Statement 2.

Quality Indicator: The education agency has clearly defined and **broadly disseminated policies and procedures** for providing effective assistive technology devices and services.

Intent: District personnel in special education and general education are familiar with the policies and procedures in both special education as well as general education. The procedures are readily available at each campus and all school personnel know how to access the procedures.

As shown in Table 4.2, 100% of the participants reported that broad dissemination of policies and procedures for providing effective assistive technology devices and services was *very important* (88.3%) or *somewhat important* (11.7%). The corresponding intent statement was reported to be *clear* by 114 participants (95.0%) and *unclear* by six participants (5.0%). Table E3 in Appendix E contains the rankings of this item by respondent group

Forty participants (33.3%) commented on Item QI-2. Five (12.5%) comments were related to practice, two (0.5%) were general comments on the content of this indicator, 22 (55.0%) were comments related to use of this indicator, and the remaining 12 (30.0%) were potential action items directly related to wording of this indicator and intent statement. Analysis of the comments underscores the importance broad dissemination of policies and procedures. A sample of the comments related to the content and use of this item includes:

- *I think this is very important- Many times regular education teachers are not kept informed. (Consumers & Families)*
- *Ensure that “broadly disseminated” includes parents, not just staff. . even if something is readily available, parents must know it exists to know to ask for a copy. (Consumers & Families)*
- *So important! We've pretty much got the special education on board, but our kids so need to have the regular education staff “pitching” for them, too. This is not only teachers and aides; we need the building principal’s support, too. (District & Regional AT Leaders)*
- *This is a very important indicator. All too often, people assume that AT is a special education problem and that general educators don't need to be made aware of it. General educators are more often than not, a part of the IEP team and they need to understand policies and procedures related to AT devices and services. (State & National AT Leaders)*

Comments from three participants in the State & National AT Leaders group provided suggestions for how policies and procedures might be broadly disseminated for future use. A sample of these comments included:

- *Having these policies on the web is critical. . Also having them a user friendly document is critical. If it is just a booklet that is sent out to the schools with no in-service regarding its contents, it will sit on shelves—and has.*
- *Multiple formats and access options would be good as a suggestion—hard-copy, digital copy, or an employee accessible web-page for example.*

Twelve comments included suggestions directly related to the wording of the quality indicator or intent statement. The main theme of those comments was concern about the words “broadly disseminated”, “familiar”, and “readily available”. Illustrative comments on this theme include:

- *What do the terms “familiar” and “readily available” mean? These terms have multiple interpretations. (State & National AT Leaders)*

- *Is the intent . . . to insure that ALL procedures are broadly disseminated? If so, then balance the phrasing and remove the last sentence of the first intent statement. It is redundant.* (Higher Education AT Faculty.)

In summary, analysis of these data indicates that QI-2 is considered to be highly important by all groups. Although 95% of the participants indicated that the intent was clear, when the comments were added to the analysis, the combined data indicated that adding an additional phrase would increase the clarity of this item. Recommended revisions are included in Table 4.3 at the end of this chapter.

Quality Indicator and Intent Statement 3.

Quality Indicator: The education agency has **written descriptions of job requirements**, which include knowledge, skills, and responsibilities for staff members who provide assistive technology services.

Intent: The education agency has clear written statements of job requirements that address the necessary AT knowledge, skills and responsibilities for all staff members. This includes all personnel from the classroom through central office. This could be reflected in a position description, assignment of duty statement or some other written description.

As shown in Table 4.2, 98.3% of participants in this investigation reported that written descriptions of job requirements, which include knowledge, skills, and responsibilities for staff members who provide assistive technology services was *very important* (70.8%) or *somewhat important* (27.5%). Two participants (1.7%)— one in the Higher Education Faculty group and one in the State & National AT Leaders group—ranked this item *as not important* to people with interests and responsibilities similar to their own. The corresponding intent statement was reported to be clear by 105 participants (87.5%) and unclear by 15 participants (12.5%). Table E4 in Appendix E contains the rankings of this item by respondent group.

This item was more frequently considered very important to participants in the three groups most closely involved in service development and delivery to students: Consumers & Families; District & Regional AT Leaders; and State & National AT Leaders. The ranking of *somewhat important* was more prevalent in the AT Policy Leaders and Higher Education AT Faculty groups, as may be expected based on the A sample of responsibilities of people within those two groups.

Forty-eight participants (40.0%) made comments on Item QI-3. Fourteen (29.2%) of the comments were related to practice, five (10.4%) were general comments on the content of this indicator, 13 (27.1%) were related to use of this indicator, and the remaining 15 (31.3%) were potential action items directly related to the wording of this item.

Although this item received high percentages of *important* and *clear* ratings, an analysis of the comments revealed considerable confusion about this item across all groups. The primary theme that emerged as the cause of confusion was differing perceptions of the positions to which the job descriptions were intended to apply. The confusion was present in comments from all groups, as illustrated by this sample:

- *Initially I read this as a job description for AT specialist. The intent is different. It implies that it should be included with all jobs. (State & National AT Leaders)*
- *Descriptions of job responsibilities of needed for all team members related to AT, not just the AT person. (District & Regional AT Leaders)*
- *It is indicated that job descriptions for those who provide AT services in the indicator then in the intent it states this includes all personnel. Well, all personnel from classroom through central office do not have the responsibility of providing AT. Therefore, job descriptions requirements would be extremely helpful for those directly associated in providing AT services but not meaningful to positions such as the school cook or accountant. (Higher Education AT Faculty)*
- *Staff members with different backgrounds and skill may share this responsibility so it is difficult to have a single set of job requirements where one size fits all. (AT Policy Leaders)*
- *I read the indicator to mean the 'experts' in the area where the intent statement says 'all personnel'. This could be a little confusing to the sticklers for detail. (Consumers & Families)*

A second theme that emerged from the comments was concern about how this indicator would be implemented and used. A sample of the comments on this theme included:

- *Who defines AT knowledge? (AT Policy Leaders)*

- *What type of position at each educational facility has the knowledge to write these job descriptions or are there resources available to the educational agency to complete this task? (State & National AT Leaders)*
- *What if the knowledge, skills, and responsibilities were written (thus meeting the “letter of the law”), but they were minimal or inadequate? WHICH knowledge and skills? (Higher Education AT Faculty)*
- *Many administrators wonder why this needs to include office staff, etc. I suggest they would want to include language which says something like “staff is open to communicating with students in a variety of manners.” I have also received very strong comments from the teacher's union, who complained that I was asking teachers to take on an additional burden. (State & National AT Leaders)*

Finally, a comment from the Higher Education AT Faculty group suggested specific changes to the wording of this item.

- *First sentence of the intent statement is merely a restatement of the QI.*

In summary, analysis of these data indicates that having written descriptions of job requirements that include knowledge, skills, and responsibilities for staff members who provide assistive technology services is considered to be important by all groups, but more important to some than others. Over 10% of the participants indicated that the intent statement was unclear, and this percentage was greater than 33% in the Higher Education AT Faculty group. These data, when combined with the comments, indicated the need for revisions to increase the intent and clarity of this item. Recommended revisions are included in Table 4.3 following the discussion of this area.

Quality Indicator and Intent Statement 4.

Quality Indicator: The education agency employs a **range of personnel with competencies** needed to provide quality assistive technology services within their areas of primary responsibility.

Intent: The agency employs staff members from the classroom through the central office who have knowledge and skills of AT commensurate with job requirements. Though classroom teachers, supervisors and purchasing agents may need different knowledge and skills related to assistive technology, all must be knowledgeable for the system to work well.

As shown in Table 4.2, 98.3% of the participants in this investigation reported that employing a range of personnel with the competencies needed to provide quality assistive technology services was *very important* (82.5%) or somewhat important (15.8%). One participant (0.8%) in the Higher Education Faculty group ranked this item as *not important* to people with interests and responsibilities similar to his or her own, and one participant (0.8%) in the same group ranked the importance of this item as *unknown*. The corresponding intent statement was reported to be clear by 105 participants (87.5%) and unclear by 15 participants (12.5%). Table E5 in Appendix E contains the rankings of this item by respondent group.

This item was more frequently considered very important to participants in three groups: Consumers and Families; District and Regional AT Leaders; and AT Policy Leaders. The ranking of *somewhat important* was more prevalent in the State & National AT Leaders and Higher Education AT Faculty groups.

Forty-five participants (37.5%) made comments on Item Q-4. Five (11.1%) comments were related to practice, eight (17.7%) were general comments on the content of this indicator, seven were related to use of this indicator (15.5%), and the remaining 25 (55.5%) were potential action items directly related to the wording of this item. Interestingly, the two participants who ranked this item *not important* or *unknown* did not elect to comment on the item.

The comments on the content of this item provided various reasons for its importance across groups. A sample of the comments included:

- *Collaboration and input from all who come in contact with an AT user is important to make sure that the designated AT is continually meeting the ever-changing needs of the user. (District & Regional AT Leaders)*
- *Yes! A little knowledge goes a long way! Administrators may not know how all of the technology can work but they MUST know and appreciate what a difference it can make in a student's life. (State & National AT Leaders)*
- *Cross disciplinary range is critical, particularly with so many children using AT in general education classrooms. (AT Policy Leaders).*
- *This is important in order to adequately meet the requirement that AT assessment and consideration be a team process. (State & National AT Leaders)*

Analysis of the comments related to practice and the wording of this item reveals a primary concern with the phrase “*employs a range of personnel with competencies*”. The comments on use all focused on the current expectations of school staff and expressed concern about adding assistive technology competencies to already over-whelming expectations.

As with Item QI-3, analysis of comments categorized as action items revealed that participants interpreted the terms “employs personnel” and “range of competencies” differently and made assumptions about the meaning of this item based on those assumptions. A sample of comments included:

- *I would rather have secretarial staff with attitudes of support and not as much technical information. Sometimes they have just enough knowledge to be dangerous and can give misleading information to parents inquiring.* (State & National AT Leaders)
- *The emphasis is on employing many people. I suspect that the intention was to indicate that multiple areas of AT disciplinary expertise should be employed, such as OT, PT, speech therapist, rehab engineer, etc. That doesn't come across.* (Higher Education AT Faculty)
- *The intent could be confused as suggesting everyone needs to have the same AT expertise.* (AT Policy Leaders)
- *I assume “employs” includes contracted services too—so that an outside source could be utilized if in-house personnel did not have the skills (example- audiologist for a classroom based listening system).* (State & National AT Leaders)

In summary, analysis of these data indicates that employing personnel with the competencies required to provide effective assistive technology services is considered important by all groups, however, there was some misunderstanding of its intent. QIAT is not meant to imply that that all personnel should have the *SAME* competencies or that having a staff with needed competencies would necessarily require many employees or restrict the use of contract employees. These data indicate that revisions in the wording of this item are needed to clarify its purpose and intent. Recommended revisions are included in Table 4.3 at the end of this section.

Quality Indicator and Intent Statement 5.

Quality Indicator: The education agency includes **assistive technology in the technology planning and budgeting** process.

Intent: Historically, the AT needs of the agency have either been separate or omitted. A comprehensive technology plan provides for the technology needs of all students in both general education as well as special education.

As shown in Table 4.2, 100% of participants reported that including assistive technology in the technology planning and budgeting process was *very important* (95%) or *somewhat important* (5.0%) to people with interests and responsibilities similar to their own. The corresponding intent statement was reported to be clear by 105 participants (87.5%) and unclear by 14 participants (12.5%). Table E6 in Appendix E contains the rankings of this item by respondent group.

Fifty-three participants (44.2%) made comments on Item QI-5. Nineteen (35.8%) comments were related to practice, 16 (30.2%) were general comments on the content of this indicator, and the remaining 15 (28.3%) were potential action items directly related to the wording of this item.

Planning and budgeting was considered an important issue across all groups, as indicated by both the ranking and large number of comments on practice and on the content of this item. In most instances, comments underscored the importance of this item. Examples of these comments include:

- *This is a prime indicator, based on my experience throughout my state. Those LEAs that include AT in their regular technology planning and budgeting tend to provide above-average AT services to students. (State & National AT Leaders)*
- *Certain administrators, when presented with the indicators really “got it” with this particular indicator. They have shared it with their planning teams, and there has been resultant progress with inclusivity of accessible technology as well as AT in the plans. (State & National AT Leaders)*
- *This is a very important consideration and one that takes AT more into the mainstream so that all students can benefit. (Higher Education AT Faculty)*

- *I believe the planning and budget should be part of the general budget, not just special education because software and many devices benefit a great number of students beyond special education. (Consumers & Families)*

One participant in the District & Regional AT Leaders group, however, expressed a different perspective on this issue with the comment:

- *Why can't the Special Education department handle the AT plan? I find that the general technology folks don't have a handle on AT. . some barely have a handle on instructional tech!*

Three main ideas emerged from comments that suggest changes in the wording of this item: the tone of the intent statement; the need for more explicit collaboration on planning; and identification of funding sources. These themes are exemplified in the following comments.

- *First sentence of intent isn't necessary. All the other intent statements are positive, but this one starts out with the negative history. The same could be said in each intent statement, but it's not. I'd drop "Historically, the AT . ." sentence. (Higher Education AT Faculty)*
- *Are you talking about the budgeting process with special education budget or overall school budget? This could make a difference in many schools.*
- *Possibly include examples of funding/budgeting sources. (State & National AT Leaders)*

In summary, analysis of these data indicates that including assistive technology in the technology planning and budgeting process is considered to be *very important* by all groups. Although the rankings indicate that the intent statement was unclear to some participants, when combined with the comments the lack of clarity appears to be more related to a desire for specificity than to ambiguity in the wording of this item. Based on these data, minimal wording changes are recommended. Recommended revisions are included in Table 4.3 at the end of this chapter.

Quality Indicator and Intent Statement 6.

Quality Indicator: The education agency provides **continuous learning opportunities about assistive technology** devices, strategies and resources for staff, family and students.

Intent: The training addresses the needs of the student, the family, and all of the staff involved with the student. Ongoing training and technical assistance opportunities are readily accessible to all members of the IEP team. The training and technical assistance includes training on AT devices, strategies and resources to support IEP goals and objectives.

As shown in Table 4.2, 100% of the participants in this study believed that providing continuous learning opportunities about assistive technology was *very important* (95.8%) or *somewhat important* (4.2%). The corresponding intent statement was reported to be clear by 115 participants (95.8%) and unclear by five participants (4.2%). Table E7 in Appendix E contains the rankings of this item by respondent group.

Fifty-one participants (42.5%) made comments on Item QI-6. Thirteen (25.5%) comments were related to practice, 14 (27.5%) were general comments on the content of this indicator, 13 (25.5%) were comments on use, and the remaining 11 (21.5%) were potential action items directly related to the wording of this item.

Ongoing learning opportunities were considered important across all groups, as indicated by both the ranking and large number of comments on practice and on the content of this item. Without exception the comments underscored the importance of this item. Examples of these comments include:

- *This is the future of general education as well as special education. Most people don't realize this yet. All media and computer specialists should have intensive training in this area because of its implications for instruction in general. They are the front-line and will need to be prepared when the rest finally realize its importance.* (AT Policy Leaders)
- *More than "very important!" Can't keep up in the field without continuous training.* (District & Regional AT Leaders)
- *This is SO critical. Lack of training is a major cause of technology abandonment.* (Higher Education AT Faculty)

- *This is very important. You may have administrative support, and great tools but without training and support to all involved the intervention will not be successful. Glad to see parents listed, they are often the one consistent team member year after year. For continued success year after year, the parents need that training.* (Consumers & Families)

Two themes were recurrent in the comments on use of this item: who should be involved in learning opportunities and what content should be included. A sample of comments in the category included:

- *Include training for folks beyond AT teams; include strategies for integrating technology into the curriculum.* (AT Policy Leaders)
- *Very important to include the family, caregivers and students in this area.* (Consumers & Families)
- *Remind them about support/supplemental staff members (cafeteria, paraprofessionals, bus aids and drivers, etc) who are often overlooked. These folks are not thought of as IEP team members but need assistance/support.* (Consumers & Families)
- *Ongoing opportunities could address two levels of training—general training for all participants in IEP meetings and more in-depth or specialized training for designated individuals in the district.* (Higher Education AT Faculty)
- *Amen! Training and TA needs to be available at a range of levels beginner to advanced.* (AT Policy Leaders)
- *Don't forget training on evaluating effectiveness of AT!* (Higher Education AT Faculty)

An interesting comment on the use of this item came in the form of a question from a participant in the Higher Education AT Faculty group.

- *Many inservice training sessions have little or no practical utility. What are the indicators of quality training and technical assistance?*

This comment was of special interest because since the time data were collected for this investigation the QIAT Consortium has developed a new area—Quality Indicators for Professional Development and Training in Assistive Technology. A copy of these indicators is

located in Appendix F and also can be downloaded from the QIAT Web site at <http://www.qiat.org>.

Two main ideas emerged from comments that suggested changes to the wording of this item: concern about the word “continuous;” and the implication that training is limited to IEP team members. These themes are exemplified in the following comments from participants in the Higher Education AT Faculty group, but were a sample of comments across groups:

- *I question the use of the word “continuous.” Consider substituting “on-going” or “as needed.”*
- *The intent statement appears to be saying the training will be readily provided to members of the IEP team so one wonders if it will not be readily provided for all staff involved with the student. Reconsider the wording.*

In summary, analysis of these data indicates continuous learning opportunities about assistive technology are considered to be *very important* by all groups. Although the rankings indicate that the intent statement was unclear to some participants, when combined with the comments, the lack of clarity appears to be more related to a desire for more specificity than is possible in one quality indicator than to ambiguity in the wording. Based on these data and the existence of the new area of QIAT on professional development and training, minimal wording changes are recommended in this item. Recommended revisions are included in Table 4.3 at the end of this chapter.

Quality Indicator and Intent Statement 7.

Quality Indicator: The education agency uses a **systematic procedure to evaluate** the components of assistive technology services to ensure accountability for student progress.

Intent: There is a clear systematic procedure with which all administrators are familiar and use regularly. This procedure is used consistently across the agency at both central office and the building level. The components of this process include budgeting, planning, delivery and evaluation of AT services.

As shown in Table 4.2, 97.5% of participants in this study reported that using a systematic procedure to evaluate the components of assistive technology services was *very important* (80%) or *somewhat important* (17.5%) to people with interests and responsibilities

similar to their own. The importance of this item was ranked as *unknown* by three participants (2.5%)—one in the Consumers & Families group, one in the Higher Education AT Faculty group, and one in the AT Policy Leaders group. The corresponding intent statement was reported as clear by 97 participants (80.8%) and unclear by 23 participants (19.2%). Table E8 in Appendix E contains the rankings of this item by respondent group.

Forty-five participants (37.5%) made comments on Item Q-7. Seventeen (37.8%) comments were related to practice, 15 (33.3%) were comments on the content of this indicator, 7 (15.6%) were comments on use, and the remaining 6 (13.3%) were potential action items directly related to the wording of this item.

Using a systematic procedure to evaluate the components of assistive technology services was considered important across all groups, as indicated by both the rankings and some of the comments on practice and the content of the item. Examples of those comments include:

- *This is critical. It makes it less likely people will cross, skip and jump over the AT item on IEPs and consider AT needs seriously.* (Consumers & Families)
- *This is excellent! Systematic procedures are the linchpin and the beacon for EC administrators who are not well-versed in AT. This also holds true for IEP teams who may think they, as teams, know less than they actually do. This is excellent!* (State & National AT Leaders)

Although there were many positive comments on both the content and use of this item, there were also numerous comments that indicated considerable confusion about whether the systematic procedure mentioned in this item was meant to evaluate the assistive technology program of the agency or the effectiveness of assistive technology services to individual students. Examples of these comments included

- *There is a clear systematic procedure for what? Elaboration is needed to clarify this.* (Higher Education AT Faculty)
- *I do not think that the intent is the same as the indicator at all.* (State & National AT Leaders)
- *Accounting for student progress is critical - I'm unclear on how all components of the intent (budgeting, planning, etc) fit this - although there needs to be account-*

ability in these areas as well - Is there a difference here between accountability for student progress as it relates to AT and district responsibility/accountability for making it possible? (State & National AT Leaders)

Similarly, the main theme of each comment that suggested changes to the wording of this item was the need to clarify whether this item concerned program evaluation or student evaluation. This theme is illustrated by the following comments.

- *This is an excellent item. To be maximally helpful, you might consider elaborating the last sentence of the intent statement. (Higher Education AT Faculty)*
- *More of intent should be stated in indicator. (AT Policy Leaders)*
- *Q7 seems better left without “to ensure accountability of student progress.” This phrase at the end seems to suggest that we need to evaluate only to ensure accountability for student progress, whereas there are plenty of other reasons why we would want to use good program evaluation methods and procedures to insure that AT services are being offered effectively, efficiently, and prudently. I think the intent statement is actually a better form of the QI. (Higher Education AT Faculty)*

In summary, analysis of these data indicates that the majority of participants in this study believed that it is important to use a systematic procedure to evaluate components of assistive technology services. However, 23 participants ranked the intent statement as *unclear* and the comments confirmed considerable confusion about whether this item was about program evaluation of services to individual students. Based on these data, changes are recommended in this item to clarify its purpose and intent. Recommended revisions are included in Table 4.3 at the end of this chapter.

Quality Indicators for Consideration of Assistive Technology Needs

Consideration of the need for assistive technology devices and services is an integral part of the educational process identified by IDEA '97 for referral, evaluation, and IEP development. Although assistive technology is considered at all stages of the process, these quality indicators are specific to the consideration of assistive technology during the development of the IEP as mandated by IDEA '97. In most instances, the quality indicators are also appropri-

ate for the consideration of assistive technology for students who qualify for services under other legislation (e.g. 504, ADA).

As shown in Table 4.4, each of the quality indicators in this area was ranked as either *somewhat important* or *very important* by greater than 98% of the participants and each of the intent statements in this section was ranked as *clear* by greater than 85% of the participants. Although the data indicate some range in the frequency that each quality indicator was ranked as *very important*, and the frequency that each intent statement was ranked as *clear*, a large majority of participants in each of the participant groups viewed all of the quality indicators and intent statements in this section as important to the consideration of assistive technology needs during the development of the IEP. Tables E9 through E14 in Appendix E contain the rankings of these items by group.

Twenty-six participants (21.7%) made comments on the area of Consideration of Assistive Technology Needs. Ten (38.5%) comments were related to practice, eight (30.8%) were comments on the content of this indicator, 2 (7.7%) were comments on use, and the remaining 6 (23.1%) were potential action items that directly suggested modification or additions to this area.

A sample of comments reflect the importance of this indicator, followed by the group, are as follows:

- *I think these indicators reflect the “ideal” status - one which districts should strive to attain.* (State & National AT Leaders)
- *I especially like the clarity of this section and its strong alignment with IDEA!* (AT Policy Leaders)
- *This section will help people understand that AT is not only for physical disabilities. Far too many children are not even considered for AT and the results are far lower functional capabilities, lowered expectations, and poorer student outcomes.* (Consumers & Families)

Two comments by participants from the District and Regional AT Leaders group expressed a need for supporting tools and documents that would assist people who seek to use QIAT to support continuous improvement of assistive technology services. Those suggestions were:

- *The indicators and intent statements are very helpful but it would be great if there was a next step - for example if a team is not using supporting data what are some steps they could take - an expansion of the matrix would be great!.*
- *While a checklist is a starting point for many people, the introduction of a problem solving matrix with comments would be an additional supportive document.*

The six comments included suggestions about changes or additions to this area: They included:

- *If a student has had a PRIVATE assistive technology assessment how would it be evaluated and integrated into the IEP? Is there a QUALITY INDICATOR needed to explain this? (Consumers & Families)*
- *AT should be listed as an intervention associated with specific goals/objectives, not simply listed as “equipment” - where does this fit? (Higher Education AT Faculty)*
- *I think it is so important to emphasize that people look at teaching strategies as well as the tools. Should this be an indicator by itself? (State & National AT Leaders)*

Analysis of this area indicates that each of these suggestions is implicitly included in the current quality indicators and intent statements. Consequently, the development of additional items is not recommended. However, in order to provide emphasis on the importance of each of these suggestions, small revisions in the wording of the quality indicators in this area are recommended to make the inclusion of these suggestions more explicit. In addition, the items within the area will be reordered to more closely resemble the order in which they should take place in the consideration process.

In summary, the quantitative and qualitative data gathered in the overview of this area provide the means to draw several conclusions. First, the participants in this study found each of the Quality Indicators for Consideration of Assistive Technology Needs to be important to the provision of quality assistive technology services and found each of the intent statements to be clear. Second, though there is a high rate of agreement on importance, comments and questions indicate the need for some revision to the area and reordering of the indicators to add further clarity to QIAT for current and potential users. Third, there is a need for support-

ing tools that can assist potential users in their use of QIAT. Specific recommendations for revisions are included in Table 4.5 and the recommended reordering of the indicators in this area is illustrated in Table 4.6, both located at the end of this chapter. Suggestions for the development of supporting tools appear in the following chapter.

The remainder of this section presents and discusses the results related to importance and clarity of each quality indicator and intent statement pair contained in the area of Consideration of Assistive Technology Needs.

Quality Indicator and Intent Statement 8.

Quality Indicator: Assistive technology devices and services are **considered for all students with disabilities** regardless of type or severity of disability.

Intent: IDEA '97 is based on a child-centered process. Decisions regarding the need for assistive technology are determined by the unique educational needs of each individual student. Services cannot be determined based on categories.

As shown in Table 4.4, 100% of the participants in this investigation reported that considering the assistive technology needs of all students with disabilities was *very important* (99.2%) or *somewhat important* (0.8%). The corresponding intent statement was reported to be clear by 103 participants (85.8%) and unclear by 17 participants (14.2%). Table E9 in Appendix E contains the rankings of this item by respondent group.

Forty-four participants (36.7%) made comments on Item QI-8. Nine (20.5%) comments were general comments on this indicator, 13 (29.5%) were comments on practice, two (4.5%) were comments related to use, and the remaining 20 (45.5%) were potential action items directly related to wording.

Comments underscore this item's importance, as illustrated below:

- *It's the law!* (AT Policy Leaders)
- *Clear and to the point.* (Consumers & Families)
- *This is extremely important! Too many educators tell parents with mild disabilities that their child does not need AT that is for kids in wheel chairs. We must eliminate this thinking/disbelief.* (Higher Education AT Faculty)

The comment made by the participant from the District and Regional AT Leaders group who rated this item as *somewhat important* was included in category of comments re-

lated to practice and stated, “*Are you trying to say there are places that make blanket statements such as children with 'XYZ' coding don't need AT?*”. This comment suggests that personnel in the district in which this participant works routinely and consistently consider the AT needs of all students with disabilities in the development of the IEP. However, as the following comments illustrate, this is not a sample of practice in some other districts:

- *Although this is a requirement of IDEA 1997, implementation of this requirement has been a problem. (AT Policy Leaders)*
- *In many places AT continues to be a service for students with the most severe disabilities. We are making inroads, but this continues to be an uphill climb to be considered for students with learning disabilities or with emotional issues. (State & National AT Leaders)*
- *Unfortunately, the reality is that many of these important decisions are not based upon the “needs” of the student, too often are determined by the “availability” of funding. (Consumers & Families)*

Two themes emerged from the analysis on the comments that included suggestions for additions or changes to the wording if this item (a) wording about legal requirements for consideration, and (b) the need for clarification or elaboration on the word “category”.

Comments about the inclusion of legal information in this statement were conflicting. A participant from the State and National AT Leaders group commented that, “*Assistive Technology consideration is specifically addressed in IDEA'97. Should there be something in the indicator that makes clear that this is not just best practice, but required?*” Another participant from the same group suggested that the reference to IDEA'97 currently included in the intent statement be removed.

The reference to the legal requirement that assistive technology be considered during the development of the IEP is addressed in the introductory paragraph that introduces this area; however, briefly referring to the legal requirement for consideration in this indicator is recommended for the following reasons. Though the indicators are meant to be viewed and used as a complementary group, if this item were used in isolation or without the introductory paragraph, it would be important that it be clear that the assistive technology needs of ALL students with disabilities is not only best practice, but also a federal mandate in this country.

Several participants commented on the need for more definition or elaboration on the term “categories”. Representative comments include:

- *Define categories e.g., category of disability, severity of disability, etc. (State & National AT Leaders)*
- *The final statement “services. . . based on categories” is unclear since categories are not defined. Are these categories of technology or categories of disabilities? (State & National AT Leaders)*
- *I got stuck on “categories” - is that handicapping conditions, placement? I also think my staff does consider AT for the severe cases, but not the LD students or the students fully included. I think we're not that unique in this case - maybe some “for examples” would be helpful. (District & Regional AT Leaders)*

Variations of this concern were expressed in several comments made by participants across groups. Based on those comments, it is recommended that there be a slight rewording of the intent statement to increase its breadth and clarity.

Finally, a comment from a participant in the Consumers and Families group suggested that the phrase “*on an individual basis*” be added to the indicator and the attention should be focused on the fact that consideration needs “*real attention and evaluation, not just a summary check box.*” Personal communications with numerous professionals who reviewed QIAT in its developmental phases confirmed that this comment reflects a concern that is felt by many across the country—the notion that checking a box indicating that “assistive technology has been considered” does not reflect adequate or effective consideration. Such observations are so important that the basis for consideration and how consideration is documented are addressed specifically in other quality indicators in this area. Therefore, no change in this item is recommended.

In summary, analysis of the quantitative data indicates that participants in this investigation believed that considering the assistive technology needs of all students with disabilities is important, but also believed that the intent statement could be clearer. Although greater than 85% of the participants indicated that the intent statement was clear, when comments were added to the analysis, the data indicate the need for revisions in the intent statement to

increase clarity, particularly related to the use of the term “categories”. The text of recommended revisions is included in Table 4.5 located at the end of this chapter.

Quality Indicator and Intent Statement 9.

Quality Indicator: The IEP team has the **knowledge and skills** to make informed assistive technology decisions.

Intent: The IEP team members collectively use their skills to recommend assistive technology devices and services needed to remove barriers to student performance. When the assistive technology needs are beyond the knowledge and scope of the IEP team, additional support from other resources is sought.

As shown in Table 4.4, 100% of the participants in this investigation reported that it is *very important* (94.2%) or *somewhat important* (5.8%) for IEP teams to have the knowledge and skills to make informed assistive technology decisions. The corresponding intent statement was reported as *clear* by 110 participants (91.7%) and *unclear* by 10 participants (8.3%). Table E10 in Appendix E contains the rankings of this item by respondent group.

Fifty-one participants (45.2%) made comments on Item QI-9. Twelve (23.5%) comments were general comments on this indicator, 20 (39.2%) were comments on practice, 5 (9.8%) were comments related to use of this indicator, and the remaining 17 (33.3%) were potential action items directly related to wording.

General comments on this item underscore the importance of IEP teams having the knowledge and skills to make informed assistive technology decisions, as illustrated below.

- *Although as individuals, the knowledge and skills may vary, collectively, it is critical to making informed decisions.* (District & Regional AT Leaders)
- *The intent is VERY clear and hopefully, in time, the practice will be, too!!* (Consumers & Families)
- *Removing barriers is a very tall order; maybe this broad scope allows for extreme flexibility in determining appropriate services. Team is a major descriptor allowing for everyone to contribute expertise and experience including the family.* (Consumers & Families)
- *The informed decision could be to seek additional input.* (AT Policy Leaders)

Comments on practice centered on perceptions of the competency of the IEP team to make AT decisions. They included a range of perspectives and some feared that IEP teams would not be able to make the “right” decisions. Sample comments included:

- *IEP teams frequently appear to lack confidence in decision making due to lack of training/experience in AT. (District & Regional AT Leaders)*
- *The indicator and intent statement are clear about the IEP team members having adequate knowledge and skills. At times, however, the IEP team members may think they are adequately informed (i.e., they are familiar with ONE type of device that another child is using) and they aren't aware of their limited knowledge base. A little knowledge can be a dangerous thing! (Higher Education AT Faculty)*
- *Developing “knowledge and skills” is an evolutionary process—you're never done. As long as a process for adjustment is in place when things don't work—the “knowledge and skills” is flexible. (State & National AT Leaders)*
- *Everyone does not need a high level of expertise, but it is most important for team members to be aware of what they do not know so they know when to request additional support and expertise. (AT Policy Leaders)*
- *Seeking assistance is very important while AT capacity is being developed. (AT Policy Leaders)*

A stronger reaction to the content of this item was expressed by a participant in the District & Regional AT Leaders group who stated:

- *Although the intent is clear, this looks like a 'Policy' for the schools. This policy contradicts the one our system already has in place which states that the Assistive Tech department must be aware of, and advise on, all cases where assistive technology is deemed to be necessary. IEP teams are not given blanket permission to decide AT needs for students. While they may have some knowledge, it is unlikely that they are as current on new approaches and devices as the AT staff.*

This comment and others that question the ability of IEP teams to make assistive technology decisions, indicate that, even among leaders in assistive technology, there is some misunderstanding about what IDEA '97 says about the special considerations that are included in the Act. IDEA '97 is quite clear that the IEP team of every student with disabilities

must consider the student's possible need for assistive technology devices and services during the development of the IEP. Because of its importance, this mandate from IDEA '97 was basically restated in Quality Indicator 8.

There is a belief, apparently supported by policy in some places, that a person or group other than the IEP team *must* be included in all assistive technology decisions, even at the level of consideration of need. This belief has powerful implications for the future generation of professional development and training tools that would support the use of QIAT and lead to the development of quality assistive technology services to students with disabilities. This was also reflected in other comments that spoke to the need for professional development and training that would build the capacity of IEP teams in the area of assistive technology:

- *Resources such as reputable and unbiased information and training must be easily accessible. (AT Policy Leaders)*
- *More information needs to be provided to the IEP teams/schools about how to consider AT competently. (District & Regional AT Leaders)*

A comment made by a participant from the Higher Education AT Faculty group also was related to how this item could be made useful.

- *What ARE those knowledge and skills that an IEP team needs? How could a person know that their program is in good shape on this item? In other words, how could one know that they don't know? The document appears in most instances to be silent on this critical issue.*

Although the purpose of QIAT is more aligned to identifying descriptors of quality services than to developing competencies for participants in the development and delivery of such services, one of the underlying principles of QIAT is that quality services involve the collaboration of competent individuals with a range of knowledge, skills and perspectives. This comment points to the need for the future development of assistive technology competencies specifically designed for IEP teams, whether such competencies are developed by the QIAT consortium or some other entity. The focus of such competencies would not be on the individual, but rather, on the *team* and the knowledge and skills that are needed *by the team* to adequately perform expected tasks related to assistive technology, including but not limited to consideration of assistive technology needs during the development of the IEP.

Suggestions for additions or changes to the wording of this item focused on the recommendation that the option of seeking assistance be made much more explicit, possibly by moving it from the intent statement to the quality indicator. This suggestion was made by at least one person in each group. A sample of comments included:

- *The intent is clear, but perhaps the indicator should also have language regarding seeking outside help if needed. (State & National AT Leaders)*
- *If I use “other resources” is that part of the IEP team? The quality indicator and the intent statement seem to conflict on this issue. (Higher Education AT Faculty)*
- *Should this indicator include a statement about getting additional support, as many IEP teams will feel their skills and knowledge are not enough? (District & Regional AT Leaders)*
- *I think the last sentence in the intent statement is important—about support from additional resources. I don't think it's realistic for every IEP team to have complete and up-to-date information about AT, but they should have access to resources that can provide additional support. Maybe that notion should also be reflected in the quality indicator. (AT Policy Leaders)*
- *Add content from last sentence of INTENT to the quality indicator. (Consumers & Families)*

In summary, analysis of these data indicates that the quality indicator is considered to be highly important, but that the item could be clearer with some rewording, particularly related to making the option to seek assistance when necessary more explicit. The text of recommended revisions is included in Table 4.5 located at the end of this chapter.

Quality Indicator and Intent Statement 10.

Quality Indicator: The IEP team uses a collaborative **decision-making process** based on data about the student environment and tasks to determine assistive technology needs.

Intent: Although IDEA requires that the AT needs of students be considered during the development of the IEP, it does not specify a process. The IEP team uses a state or district determined process to make informed decisions regarding the need for assistive technology. The process is communicated and used consistently across the district.

As shown in Table 4.4, 100% of the participants reported that it is *very important* (85.8%) or *somewhat important* (14.2%) for IEP teams to use a collaborative decision-making process to determine assistive technology needs. The corresponding intent statement was reported as *clear* by 107 participants (89.2%) and *unclear* by 13 participants (10.8%). Table E11 in Appendix E contains the rankings of this item by respondent group.

Forty-four participants (36.6%) made comments on Item QI-10. Nine (20.5%) comments were general comments on this indicator, 16 (36.4%) were comments on practice, six (13.6%) were comments related to use of this indicator, and the remaining 13 (29.5%) were potential action items directly related to wording of this item.

General comments on this item underscore its importance, as illustrated below:

- *Consistency is critical—there is a severe loss of confidence in the process if a level of continuity is not established.* (Consumers & Families)
- *The notion of having an established PROCESS and implementing it consistently is important. Key words in the indicator that contribute to its effectiveness are references to decision making based on the environments and tasks.* (Higher Education AT Faculty)
- *Because a state or locally mandated process exceeds the federal requirement, we can only “suggest” best practice from the state. It is helpful to have this indicator to support why districts should either use what has been provided from the state or develop a consistent practice.* (State & National AT Leaders)
- *Some teams have developed their own effective process; however most teams need the direction of a defined process. Such a standard process also helps managers or consultants assist teams who are struggling.* (State & National AT Leaders)

Comments related to practice focused on the lack of consistency often present in processes currently in use and on differing perspectives of what participation should be like within existing processes. A sample of comments included:

- *I do not believe this is happening consistently across schools within districts, much less across districts* (District & Regional AT Leaders)
- *There is no consistency here. Everyone does their own thing. I don't think this is bad. I believe that the IEP team should follow a process, but I don't know that it*

has to be the same for each and every district. As long as they are looking at the student needs first and the tools last, I'm happy. (AT Policy Leaders)

- *The involvement and preferences of families and students needs more emphasis in the process. (Consumers & Families)*
- *Expertise should be a factor in the weighting given to the opinions in the group. Too often, individuals who are not knowledgeable over- or under-serve despite the advice of the most knowledgeable members of the group. The result is the taxing of resources or the underutilization of AT. (AT Policy Leaders)*

The importance of developing supports and tools that contribute to an understanding of collaborative processes, active participation, and the factors upon which effective decisions are based is underscored by the following comment on the content of this item. A participant in the Consumers and Families group stated:

- *Data is NOT IMPORTANT. This could prevent a complex child from receiving AT devices/services. For some of our kids the only consistent thing is their inconsistency which could preclude them from receiving access to AT.*

This comment indicates a misunderstanding of the term “data”, most likely based on experiences in which the term was used to limit services to the participant’s child. This comment was only made by one person; however, demographic information on this participant indicates that this person holds a position of great influence among consumers and families. Thus, the comment demonstrates a great need for increased communication and training for families on the importance of accurate data and their appropriate use in guiding decisions. Without information to clarify the meaning and use of *data* for all people involved in decision-making of any kind this gap is likely to broaden rather than narrow.

Other comments expressed ideas about consistent processes and data collection that could also be addressed through the development of supports that could help professional and families work together to develop and implement effective decision-making processes. A sample of comments included:

- *This process could be elaborate or simple. We use an informational sheet that guides discussion on AT at the IEP meeting. The discussion is noted on the cover sheet, and for now this works. (District & Regional AT Leaders)*

- *I am still not sure about what the process is or “looks like.”* (AT Policy Leaders)
- *The item appears to be silent on the indicators of a GOOD process.* (Higher Education AT Faculty)
- *I think it is good to stay broad with this category since people may use different methods and processes—most of which work for different reasons—but the point is that they are using data where appropriate.* (Higher Education AT Faculty)

The purpose of QIAT is not to define a specific process that should be in place, but rather to point to the need for having processes so that all involved can work together to define the specific processes that are most suited to their particular situation. However, it would be helpful to provide resources that have been useful to others that could assist states and districts in the development of their own consideration processes.

The suggestions for additions or changes to the wording of this item ranged from minor changes aimed at increasing emphasis to the addition of one or more indicators and intent statements. Comments that suggested minor edits included:

- *I suggest underlining the words “collaborative” and “based on data” to emphasize them.* (District & Regional AT Leaders)
- *It might help here to emphasize that the process needs to be systematic.* (Higher Education AT Faculty)
- *The law doesn't specify a particular process, but it is supposed to be a “team process.” Should that be included here?* (State & National AT Leaders)

Several comments suggested that this item contained two main ideas: (a) the need for a data collection process, and (b) that data should include not only information about the student, but also about the student’s customary environments and expected tasks. The comment that suggests the most comprehensive changes to this item was submitted by a member of the Higher Education AT Faculty group and reads:

- *Taken together, the Indicator and the Intent statements cover a number of important points, e.g., collaboration, data-based decision-making, a tripartite focus on student-environment-task, a defined process, and consistent application. That is a LOT for one item. I believe that this document would be more useful for the five*

purposes communicated at the beginning if some of these points enjoyed their own indicator. It is a question of focus.

In summary, analysis of these data indicates that use of a collaborative decision-making process based on data about the student environment and tasks to determine assistive technology needs is considered to be important across all groups. Comments on this item indicate that the impact of this item could be stronger with some rewording and reworking. It is recommended that this item be split and a new quality indicator and intent statement be added to the area of Quality Indicators for Consideration of Assistive Technology Needs. The existing indicator will maintain the main idea of the collaborative process and the new indicator will emphasize the main idea of gathering and analyzing information about the student within the context of the student's environments, curricula, and expected tasks. The text of recommended revisions to QI-10 and the new indicator and intent statement appear in Table 4.5 located at the end of this chapter. In order to protect the fidelity of the numbering system used in this investigation, it has not been given a number—it is designated as “NEW” in Table 4.5.

Quality Indicator and Intent Statement 11.

Quality Indicator: A **continuum of assistive technology** devices and services is explored.

Intent: The IEP team considers a range of tools and strategies, including no tech, low tech and high tech to meet the educational needs of the student. Consideration is not limited to the devices and services currently available within the district.

As shown in Table 4.4, 100% of the participants reported that it is *very important* (90.8%) or *somewhat important* (9.2%) for a continuum of assistive technology devices and services to be explored when considering a student's need for assistive technology. The corresponding intent statement was reported as *clear* by 110 participants (91.7%) and *unclear* by 10 participants (8.3%). Table E12 in Appendix E contains the rankings of this item by respondent group.

Forty-one participants (34.2%) made comments on Item QI-11. Ten (24.4%) comments were general comments on this indicator, nine (21.9%) were comments on practice, four (9.7%) were comments related to use of this indicator, and the remaining 18 (43.9%) were potential action items directly related to wording of this item.

General comments on this item underscore the importance of exploring a continuum of assistive technology devices and services, as indicated below.

- *This is very, very important. Also think that many people think that AT is only high-tech. This broadens that perception.* (District & Regional AT Leaders)
- *It is vital that a range be considered, because, in fact, sometimes “no tech” is the best route for an individual child.* (AT Policy Leaders)
- *Yes! One size does not fit all.* (Consumers & Families)

A small number of comments mentioned concern that when families have the opportunity to explore a range of possibilities, they immediately leap to the high tech end of the range. A participant in the AT Policy Leaders group shared this perspective:

- *The danger of exploring options is that it will become a “shopping trip” in which wish fulfillment has more to do with the choice than actual specific student need.*

While this can happen with some families—and some professionals as well—an interesting experience shared in a comment by a participant in the Consumers and Families group demonstrates just the opposite.

- *Right now, because of their limited knowledge, my son's school thinks they need a \$6,000 system to support his access to print. At the IEP meeting I told them they could get the job done with a \$200 scanner and \$500 optical character recognition program. . . even a \$200 reading pen would help in most cases. If they were more knowledgeable about what was available, they'd be less vulnerable to sales pitches for higher end equipment that's not needed.*

Two themes emerged from the comments on practice: (a) a continuum is often not considered for a variety of reasons, and (b) there are environmentally specific situations in which participants believe an adequate range of devices is available. Representative comments included:

- *In many IEP meetings “no tech” is the only alternative considered.* (Consumers & Families)
- *The pitfall I've experienced here is a desire to implement AT based on staff experience instead of thoroughly exploring options based on student need.* (District & Regional AT Leaders)

- *If a district has a wide range of tools available, it may not need to explore beyond that. (State & National AT Leaders)*
- *Our state maintains a statewide lending library accessible to all school districts at no cost. Library lending time is 3 weeks. It has a complete range of low tech and high tech devices. (State & National AT Leaders)*

Other comments expressed ideas about the development of supports that could help professionals and families work together to consider a continuum of assistive technology options. These comments focused on the importance of professional development and training for all team members. A sample of comments included:

- *This supports the need for providing team members with continuous learning opportunities. How can they make recommendations for a program or device they have never heard of? (Consumers & Families)*
- *People need to know where to begin in the continuum and how to work up. (District & Regional AT Leaders)*
- *Teams are too often reactive to will of one team member, marketing from a particular manufacturer. Sadly, they lack the training to understand the choices in the marketplace. (State & National AT Leaders)*
- *People also need to know when to stop exploring. Too much exploration can hinder progress when the student and the teacher already know what works. (Consumers & Families)*

In addition to specific wording changes, the theme that emerged from the comments with suggestions for additions or changes to the wording of this item was concern about the word “continuum”. Illustrative comments included:

- *Add in words like “from low-tech to high-tech” and/or explain what is meant by “continuum.” Too many folks, including parents, think AT ONLY means computers, augmentative communication devices, and so forth. They don't realize AT also includes stuff we can make ourselves, things we can buy at Wal-Mart or Radio Shack, as well as sophisticated, more expensive items. (Consumers & Families)*

- *The indicator might be better said as “a range” or simply different strategies are considered across low tech and high tech strategies—you could look at a continuum that might just include various high tech devices. (Higher Education AT Faculty)*
- *Change the word 'including' to “for example” or something similar. There are not always appropriate approaches on both ends of the continuum. . (District & Regional AT Leaders)*

In summary, analysis of these data indicates that participants across all groups believe that it is important to explore a range of assistive technology devices and services during the consideration process. These data also indicate that the item could be more readily understood with some rewording, particularly related to the word “continuum.” The text of recommended revisions is included in Table 4.5 located at the end of this chapter.

Quality Indicator and Intent Statement 12.

Quality Indicator: Decisions regarding the need for assistive technology devices and services are made based on **access to the curriculum and the student’s IEP goals** and objectives.

Intent: After the IEP team determines the curricular tasks the student needs to complete and develops the goals and objectives, the team considers whether assistive technology is required to accomplish those tasks.

As shown in Table 4.4, 98.4% of the participants reported that it is *very important* (94.2%) or *somewhat important* (4.2%) for decisions regarding the need for assistive technology devices and services to be made based on access to the curriculum and the student’s IEP goals and objectives. The remaining 1.6% - 2 participants in the AT Policy Leaders group - ranked this item as *not important* to people with assistive technology interests and responsibilities similar to their own. The corresponding intent statement was reported as *clear* by 105 participants (87.5%) and *unclear* by 15 participants (12.5%). Table E13 in Appendix E contains the rankings of this item by respondent group.

Forty-two participants (35.0%) made comments on Item QI-12. Nine (21.4%) comments were general comments on this indicator, 17 (40.5%) were comments on practice, two (4.8%) comment was related to use of this indicator, and the remaining 14 (33.3%) were potential action items directly related to wording of this item.

General comments on this item underscore its importance to most participants. A sample of those comments includes:

- *Probably more important than “Very Important”* (Higher Education AT Faculty)
- *This indicator is important because it builds on the association between the law and QIAT.* (Higher Education AT Faculty, AT Policy Leaders)
- *Access to the curriculum is a component of FAPE.* (Higher Education AT Faculty)
- *This is extremely important. We run into misunderstandings on a rather regular basis where people want to get AT for the sake of AT. Emphasizing that AT solutions are determined based on “EDUCATIONAL NEED” is very important.* (State & National AT Leaders)

Comments from the two participants in AT Policy Leaders group who ranked this item as *not important* indicated that each believed the content of this item was included in other quality indicators in this area.

A theme in the comments on practice from participants across groups was concern about what the terms *educational need* and *access to the curriculum* meant in practice, not only in assistive technology, but in other areas as well. Comments reflect the general confusion in practice about what can be considered curriculum-based and educationally relevant for students with disabilities and how educational placement may impact decisions. Representative comments that express this concern included:

- *This brings up the discussion of “what is access to curriculum?” For example, if a student cannot toilet, do they have access to the curriculum? If they cannot move between classes in a high school do they have access to the curriculum? Glasses? Wheelchairs? Toileting, eating and other self-care devices? Educational versus medical equipment? This is not clear in the courts yet and not clear here. . . probably won't be able to be clear here.* (Higher Education AT Faculty)
- *I think this goes beyond “access to curriculum.” IDEA states that a child's goals should represent his “participation and progress” in the general education environment (e.g., inclusion!). AT can mean the difference between a child succeeding and failing in the general education environment. However, if a child is in a seg-*

regated resource room, where little is expected of him, the IEP team might say he DOESN'T need an AT device! (Consumers & Families)

- *Families need to know what the general curriculum is that their child should be accessing. (Consumers & Families)*

Another theme that was frequently expressed in the comments on practice indicated that participants across groups have a major concern about the ability of IEP teams to develop goals and objectives that address the educational needs of students with disabilities. Representative comments on this theme included:

- *Determining IEP goals/objectives is the area where most teams are weakest. There are few examples/non-examples to provide guidance. The idea that you should tie back to general education is rarely done to its full extent. (State & National AT Leaders)*
- *The problem is that often IEP goals are poorly written with low expectations. Families need help in learning how they are co-developers of meaningful and challenging goals, before the AT can be plugged in. (Consumers & Families)*
- *I think sometimes the goals and objectives limit the possibilities because the team cannot envision other possibilities that AT may create. (District & Regional AT Leaders)*
- *One concern is often that teams don't reach high enough for some students regarding the curriculum because of their own AT limitations - as the technology continues to grow, so do possibilities - I've often seen alternate curriculum goals developed because lack of knowledge - not only with AT but perhaps instructional methods. (State & National AT Leaders)*

Finally, participants expressed hope that consideration and inclusion of assistive technology in the educational programs of students with disabilities who require it will provide leadership for improving program development for those students. Comments include:

- *I would like to think that the introduction of AT will influence the development of more participative, curriculum-based IEP goals and objectives. (State & National AT Leaders)*

- *The paper work is not always in the correct order. Often the question about the need for AT services or devices is asked before the goals are written. Maybe this will change.* (District & Regional AT Leaders)

These comments indicate a strong need for increased support and training for IEP team members, not only related to considering assistive technology, but also on the more basic, foundational development of a meaningful IEP with goals that are connected to the general curriculum and address the unmet educational needs of the student. A well-designed program sets the context for determining the supports and services that are needed to enable the student to participate in activities and make progress toward mastery of the goals. For some students with disabilities, those supports include assistive technology devices and services.

Two comments suggested specific content for inclusion in supports designed to increase the knowledge and skills of IEP teams about assistive technology consideration.

- *This supports the need for providing team members with continuous learning opportunities. They need to know how to make these connections. When does one consider the need to develop additional goals as a result of including AT within an IEP? Some students may need a goal directly related to the developing the skill/utilization of the AT, for example.* (Consumers & Families)
- *It is important for team members to understand the importance of determining what the underlying task is (i.e. the physical task of writing a story or the creative aspect of turning an idea into a story?). Sometimes the physical effort a student expends on a task consumes the student and leaves little opportunity to accomplish the task that was actually intended.* (AT Policy Leaders)

The primary theme of comments with suggestions for additions or changes to the wording of this item involved broadening or clarifying the basis for consideration of assistive technology need. Participants across all groups specifically mentioned the inclusion of extra-curricular activities in comments such as these:

- *Expand this to include specific reference to other goals and objectives like technology related to access to extra-curricular activities.* (Consumers & Families)
- *I would include “extra- curricular” as well. That’s an important part of student life.* (Higher Education AT Faculty)

Other comments with suggestions for additions or changes to this item included:

- *Since AT may be a part of special education, related services, or supplementary aids and services, I'd like the statement to begin "AS the IEP team determines. . . rather than "AFTER the IEP. . .". (AT Policy Leaders)*
- *Go beyond "access." IDEA states that a child's goals should lead to "participation and progress" (Consumers & Families)*

In summary, analysis of these data indicates that the majority of participants across all groups believed that it is important to base decisions regarding the need for assistive technology devices and services on access to the curriculum and the student's IEP goals and objectives. However, comments indicate that there is considerable ambiguity in what constitutes "access to the curriculum" and educational relevance, thus leading to complications in practice. In addition, comments indicate the need for broadening the bases for consideration and specifically mention including a reference to extracurricular activities somewhere in the wording of this item. In order to increase the accuracy and utility of this item, minor rewording is recommended. The text of recommended revisions is included in Table 4.5 located at the end of this chapter.

Quality Indicator and Intent Statement 13.

Quality Indicator: Decisions regarding the need for assistive technology devices and services and supporting data are **documented**.

Intent: The IEP team determines whether or not assistive technology devices and/or services are needed. The IEP team uses something more than a check box to document the basis of the decision.

As shown in Table 4.4, 98.4% of the participants reported that it is very important (94.2%) or somewhat important (4.2%) for decisions regarding the need for assistive technology devices and services and supporting data to be documented. The corresponding intent statement was reported as *clear* by 103 participants (85.8%) and *unclear* by 17 participants (14.2%). Table E14 in Appendix E contains the rankings of this item by respondent group.

Forty-eight participants (40%) made comments on Item QI-13. Five (10.4%) comments were general comments on this indicator, 14 (29.2%) were comments on practice, six

(12.5%) were comments related to use of this indicator, and the remaining 23 (47.9%) were potential action items directly related to wording of this item.

General comments by participants in all groups provided reasons why they believed it was important to document decisions and include supporting data. A sample of those comments includes:

- *Absolutely! Accountability for the process is imperative.*” (State & National AT Leaders)
- *It is important to have a documentation/paper trail so that .what has been considered and tried in the past is easily and readily communicated.* (Consumers & Families)
- *This indicator supports adherence to due process.* (AT Policy Leaders)
- *The IEP team provides a record of the rationale for its decision regarding the student's need for AT to ensure the student a FAPE. This could also be important data for mediation, complaint investigation, or in due process hearings.* (AT Policy Leaders)
- *The AT assessment process is iterative in nature. It's important to document how determinations were made so that follow-up is more effective. If a device/solution is not working, the team responsible for following the student's progress needs to understand the rationale behind the solution so they can problem-solve for improvement.* (State & National AT Leaders)

Comments on practice from participants across groups focused on concerns about inadequate and underutilized documentation. Concern was expressed that documentation was not always available to those who implement the IEP and that some implementers did not follow the recommendations. Representative comments that expressed these concerns included:

- *The check box is the most A sample of approach in most instances.* (State & National AT Leaders)
- *I guess this is where a worksheet option would help. It is an option in our district, but it seems like the truly competent people who already go the extra mile are the ones who fill the worksheets out, too.* (District & Regional AT Leaders)

- *Evidence of AT need/use is often found in attached minutes/notes - the problem is that they may be overlooked by future teams. (Higher Education AT Faculty)*
- *It can look good on paper and not happen. (District & Regional AT Leaders)*

These comments indicate a strong need for the development of supports that provide IEP teams with guidance on how and where to adequately document the results of assistive technology consideration and that rationale for reaching those results. Comments that suggested specific supports included:

- *It would be very helpful if the indicators could include an appendix with a suggested decision-making matrix. (AT Policy Leaders)*
- *Examples could be provided, such as checklist of factors considered, written statement, etc. (Higher Education AT Faculty)*

Finally, a participant in the Higher Education AT Faculty group expressed a caution about increased documentation:

- *New problems will emerge about the defensibility of decisions. While on the surface, this indicator appears to be an excellent strategy, much more work needs to be done on AT decision-making before requirements like this are put in place. That said, I can't argue with the need for collecting and using data. (Higher Education AT Faculty)*

Many conflicts about decisions currently occur in practice. Providing support on how to consider assistive technology needs adequately and collaboratively and documenting decisions in a way that includes data and a clear rationale for the decisions should go a long way to decrease conflicts about decisions. It is the intent of QIAT to draw attention to the need for increased training and support that builds the capacity of IEP teams so that they can consistently and reliably consider the assistive technology needs of students with disabilities and communicate those decisions clearly.

The primary themes of the comments with suggestions for additions or changes to the wording of this item included creating a more positive tone and providing examples of what adequate documentation of decisions might include. A sample of comments on the tone of this item included:

- *Clear, but catty! (District & Regional AT Leaders)*

- *The IEP team uses something more than a check box.” This doesn't seem to have the voice of the rest of this document. (State & National AT Leaders)*
- *Put in what IS needed, not what is not good (checkbox). For example, the program documents the steps in the process of the decision-making. (Higher Education AT Faculty)*
- *I understand the frustration with the checkbox, but it might be a little more positive to state that the team should document how they considered AT in addition to simply stating whether it was or was not considered. (Higher Education AT Faculty)*

Participants across all groups were concerned that the “something more” was vague and provided little guidance about what would be useful documentation. Specific comments included:

- *The phrase “something more” is vague. One suggestion is to use the term “instrument” or “tool.” (State & National AT Leaders)*
- *The word “documented” is vague. The first sentence in the intent statement is unnecessary. (AT Policy Leaders)*
- *In the intent statement the concept of “something more than a check box” is clear but does not provide much guidance as to what that something should be. The intent statement needs to provide at least some examples. . results of AT assessment, data on student performance with and without AT, data from device trials, etc. (Higher Education AT Faculty)*

In summary, analysis of these data indicates that participants across all groups believed that it is important to document assistive technology decisions and supporting data. However, comments indicate that the tone of this item could be improved and that additional specificity about what might be included in adequate documentation would be helpful. In order to improve its tone and utility, revisions to this item are recommended. The text of recommended revisions is included in Table 4.5 located at the end of this chapter.

Quality Indicators for Assessment of Assistive Technology Needs

Assessment of Assistive Technology Needs is a process conducted by a team, used to identify tools and strategies to address a student’s specific need(s) for assistive technology

devices and services. The issues that lead to an assistive technology assessment may be rather simple and quickly answered or very complex and challenging. Assistive technology assessment takes place when such issues are beyond the scope of the problem solving that occurs as a part of normal service delivery.

As shown in Table 4.7, each of the quality indicators in this area was ranked as either *somewhat important* or *very important* by greater than 98% of the participants and each of the Intent statements in this section was ranked as *clear* by greater than 87% of the participants. Though the data indicate some range in the frequency that each quality indicator was ranked as *very important*, and the frequency that each Intent statement was ranked as *clear*, a large majority of participants in each of the participant groups viewed all of the quality indicators and Intent statements in this section as important to the assessment of assistive technology needs. Tables E15 through E21 in Appendix E contain the rankings of these items by group.

Fourteen participants (11.7%) made comments on the area of Assessment of Assistive Technology Needs. Six (42.8%) comments were related to practice, five (35.7%) were comments on the content of this indicator, and the remaining three (21.4%) were potential action items that directly suggested modification or additions to this area.

Comments on the content of this area reflect the importance of these quality indicators to the assessment of assistive technology needs. Following is a sample of the comments, followed by the participant's group:

- *I think these are ideal—districts should strive to establish these indicators.* (State & National AT Leaders)
- *All of the indicators for quality in the assessment piece are VERY IMPORTANT.* (AT Policy Leaders)
- *I would be so excited to see all of this put in action!!* (Consumers & Families)

When speaking of the practice of assistive technology assessment in education, a participant from the State and National AT Leaders group contributed a comment about assistive technology assessment that is frequently heard in the field. *I find that people have very different definitions of what “assessment” means. This can cause difficulties among team members until the definition is agreed upon.*

In summary, the quantitative and qualitative data gathered in the overview of this area provide the means to draw several conclusions. First, the participants in this study found each of the Quality Indicators for Assessment of Assistive Technology Needs to be important to the provision of quality assistive technology services and found each of the intent statements to be generally clear. Second, though there is a high rate of agreement on importance, comments and questions indicate the need for some revision to the area to add further clarity to QIAT for current and potential users. Third, the practice of assistive technology assessment can be clouded by differing definitions of assistive technology assessment and differing visions of the assessment process. This indicates a need for the development of supporting tools and training that can enhance the ability of families and service providers to work together to increase the availability and consistency of quality assistive technology assessments in schools. Specific recommendations for revisions are included in Table 4.8 and suggestions for the development of supporting tools appear in the following chapter.

The remainder of this section presents and discusses the results related to importance and clarity of each quality indicator and intent statement pair contained in the area of Assessment of Assistive Technology Needs.

Quality Indicator and Intent Statement 14.

Quality Indicator: Assistive technology assessment **procedures** are clearly defined and consistently used.

Intent: Throughout the educational agency, personnel are well informed and trained about assessment procedures and how to initiate them. There is consistency throughout the agency in the conducting of assistive technology assessments.

As shown in Table 4.7, 100% of the participants in this investigation reported that having and using clearly defined assessment procedures as *very important* (89.2%) or *somewhat important* (10.8%). The corresponding intent statement was reported to be clear by 112 participants (93.3%) and unclear by 8 participants (6.7%). Table E15 in Appendix E contains the rankings of this item by respondent group.

Twenty-eight participants (23.3%) made comments on Item QI-14. The comments on this item were difficult to categorize, as they tended to reflect many ideas related to QIAT, practice, or use—or possibly, all three. Even comments about possible rewording tended to

relate more to desired changes in assistive technology assessment practices than to QIAT itself.

A comment from a participant in the Higher Education AT Faculty group underscores the importance of this item and also highlights the way that the areas and indicators contained in QIAT complement each other.

- *This indicator and intent statement seems to get more to the point (in backing up Administrative Indicator #2) in emphasizing the importance of having a system or process that ensures that everyone is on the same page in following it.*

Several comments demonstrated that, while participants believed that having and using procedures is important, assistive technology assessment is complex and made more complex by varying perspectives on what assessment is, what might be important to include in procedures, and how procedures might be applied. Illustrative comments include:

- *We're not dealing with AT assessments in isolation; our evaluations are really of learning enhancement, communication enhancement, etc. Student evaluation procedures (beyond those involving AT) should be defined and systematically applied. (AT Policy Leaders)*
- *There need to be guidelines for determining if an evaluation (assessment) is needed or not and then when doing the evaluation. The idea that each school can create their own frightens me. (Consumers & Families)*
- *What can be said about FTE equivalents? Case load size? New evaluations vs. monitoring current student services? (Higher Education AT Faculty)*
- *I think it's important that these procedures are wide in scope, and I'm not sure that "consistency" is always critical. For example, parents can be very effective at "assessing" a child at home -- can a child use the family's home computer? Or if a parent, on her own, has acquired an aug comm demo, is the child using it successfully at home? Too many times, IEP teams discount parental "assessment" and/or experience because the assessment wasn't done by "professionals" according to "accepted practices," and so forth and so on! (Consumers & Families)*
- *Procedures can be too confining, especially with more difficult or elusive AT needs. The intent seems to address a referral process rather than an assessment*

procedure. If the agency employees well trained AT personnel, the need for assessment procedures is reduced, by virtue of the expertise of the personnel.

(Higher Education AT Faculty)

These comments indicate the wide range of perspectives even among assistive technology leaders and support the need for broad participation in the development of procedures for assistive technology assessment that can help people work together with common purpose and positive results. Further, they indicate a strong need for professional development and training on what procedures might include and how they might be most effectively implemented. Comments that included specific recommendations for items that need to be developed to support implementation of this indicator included suggestions such as:

- *People need to know that consistency is critical, yet there must be sufficient flexibility to go where the assessment leads you, within the parameters that support reliability.*
- *Parents and general educators need to know about this, too.* (Consumers & Families, State & National AT Leaders)

A theme among the comments that suggested changes in the wording of this item was the need for more specificity than would typically be contained in a quality indicator. Further, comments indicated some confusion about the use of the word “procedures,” assuming it to be synonymous with “process.” Sample comments include:

- *In my experience, AT assessment is probably the most wanting skill among school professionals. What are the indicators of good assessment procedures? Some of the peripheral attributes (e.g., where and by whom) are spelled out in subsequent items, but there is little about the elements of the process. I believe this is a serious omission.* (Higher Education AT Faculty)
- *I question the expectation of consistency in assessment. Research tells us there is tremendous variability in some forms of assessment or measurement of student behavior, thus the need to establish reliability in some way. I think a better way to phrase the intent is to suggest that the education agency needs to provide clear performance support to guide educators*

with conducting assessments as consistently as possible. (Higher Education AT Faculty)

While these points are important, QIAT is intended to assist agencies by pointing out the need for procedures for obtaining, conducting, and reporting the results of assistive technology assessments so that stakeholders in the agency can work together to develop procedures that are appropriate for their needs. The purpose of the procedures is to ensure, to the greatest extent possible, that: (a) those who need assessments know how to get them and how to participate in them, (b) those who conduct assessments know what is expected and how to work together to meet those expectations, and (c) those who need the results of assessment for decision-making and service provision have results that are useful and reliable. While it would be helpful for QIAT or other broadly participative group to develop sample guidelines that would be of help in developing procedures, it is not the purpose of QIAT to propose a specific set of procedures.

In summary, analysis of the quantitative data indicates that participants in this investigation believed that is important that there be clearly defined and consistently used procedures for assistive technology assessment. Comments, however, indicate that there is some misunderstanding about whether this item refers to procedures that communicate how assistive technology assessments are initiated, conducted, and reported within an agency or whether this item refers to the actual process of conducting an assistive technology assessment. In order to clarify this misunderstanding, revision to the wording of this item is recommended. The text of recommended revision is included in Table 4.8 located at the end of this chapter.

Quality Indicator and Intent Statement 15.

Quality Indicator: Assistive technology assessments are conducted by a **multidisciplinary team** which actively involves the student and family or caregivers.

Intent: The multidisciplinary team conducting an assistive technology assessment is comprised of people who collectively have knowledge about the abilities and needs of the student, the demands of the customary environments, the educational objectives, and assistive technology. Various team members bring different information and strengths to the assessment process.

As shown in Table 4.7, 98.3% of the participants in this investigation reported that it is *very important* (90.8%) or *somewhat important* (7.5%) that assistive technology assessments

are conducted by a multidisciplinary team which actively involves the student and family or caregivers. Two participants (1.7%)—one from the Consumers and Families group and one from the Higher Education AT Faculty group—ranked the importance of this item as *unknown*. The corresponding intent statement was reported as *clear* by 90.8.7% participants and *unclear* by 9.2% of participants. Table E16 in Appendix E contains the rankings of this item by respondent group.

Thirty-eight participants (31.7%) made comments on Item QI-15. Five (13.1%) comments were general comments on this indicator, 19 (50.0%) were comments on practice, one (2.6%) was a comment related to use of this indicator, and the remaining five comments (13.2%) were potential action items directly related to wording of this item.

General comments on this item underscore the importance of assistive technology assessments being conducted by a multidisciplinary team that actively involves the student and family or caregivers, as illustrated below.

- *Critical to success and ongoing support.* (District & Regional AT Leaders)
- *AT does not belong to any one person, situation, or environment. It can not work well or be functional if you don't have everyone on board. .never mind trying to transition it to another setting!* (District & Regional AT Leaders)

Though these comments are very positive about team involvement, a primary theme of the comments on practice was concern that all who need to be involved in assistive technology assessments either are not valued or do not *feel* valued as active team members. This concern was not limited to any one group; however, it was most frequently expressed about consumers and family members by participants from several different groups. A sample of comments included:

- *It is extremely important to include family members and also to have input from secondary supports such as school bus drivers, athletic coaches, clergy, community supports, etc. when needed or appropriate.* (AT Policy Leaders)
- *Many times the team forgets to involve the family and/or the student in the decision-making process. The voices of the student and family are not always listened to, i.e. professionals feel they know best.* (Consumers & Families)

Comments on practice also indicated some concern about the make-up and functions of multidisciplinary teams who conduct assistive technology evaluations.

- *True, BUT the multidisciplinary team need not always include members from every discipline. Key players must be available from which to choose, but the use of multidisciplinary teams in special education went by the wayside when members sat around and twiddled their thumbs because there was no reason for them to be there. (Higher Education AT Faculty)*

The idea that a fixed group of professionals representing different disciplines should conduct assistive technology assessments in neither explicitly nor implicitly included in QIAT. This comment underscores the need for users of QIAT to attend not only to the quality indicator, but also to the information included in the intent statement that accompanies each of the quality indicators. In this instance, the intent statement clarifies that the people with the knowledge and skills needed to address the issues are the ones who must be involved, not people with specific credentials or specific job titles.

Comments about the development of tools that would support implementation of this indicator spoke of the need for examples and for professional development and training that would include a focus on collaboration. A sample of comments include:

- *My experience is that many school personnel have very little experience working effectively in teams. So I have to provide as much training on collaboration as I do on AT. (State & National AT Leaders)*
- *This is an important indicator but multidisciplinary practice for many people seems an ideal rather than reality. It might be good for people to understand what such a scenario might look like. For example, I'm often the AT expert for my son. The special ed teacher, regular ed teachers, and I (and sometimes my son) talk about what might make sense given the classroom and homework demands. Trying things out isn't something I have influence over so things break down. Having an example from beginning to end of the assessment so people could see how their roles shift would be helpful. (Consumers & Families)*
- *Referral to an AT team is not step one. Too much time is lost to "referring away" the problem. People need to understand that assessment is a "process" and not a*

set of discrete tests and that the assessment process begins at the local IEP team level. (State & National AT Leaders)

Suggestions for additions or changes to the wording of this item focused on the recommendation. A sample of comments included:

- *There are two constructs in the item: 1) appropriate composition of multidisciplinary team; and 2) multidisciplinary team includes student/fam/caregiver. The indicator does not appropriately balance the two. While the intent statement helps, it then loses consistency with indicator. Indicator could say something like “. . .conducted by an appropriate team representing needed expertise and perspective including, student, family, and caregiver.” (Higher Education AT Faculty)*
- *I would want the intent statement to reflect that this begins with the IEP team and that the multidisciplinary team may be a knowledgeable local team or may require support from other AT specialists when the scope of the issues are beyond the knowledge and skill level of the local team. (State & National AT Leaders)*

A comment on rewording by a participant in the AT Policy Leaders group reflected a way of thinking about when an AT assessment occurs and who is involved that was not typical among the participants in this survey.

- *Reword the intent statement to convey the AT evaluation is part of the comprehensive evaluation and that the multidisciplinary team includes individuals with skill and expertise in AT evaluation. .The multidisciplinary team that conducts the comprehensive individual evaluation includes people that collectively have knowledge about the abilities and needs of the student, the demands of the customary environments, the educational objectives, and assistive technology. (AT Policy Leaders)*

Although it is true that, in some places (Texas, for example), there are some state rules that require that consideration of a student’s assistive technology needs be included in the comprehensive evaluation to determine eligibility for special education services, there is no requirement that an assistive technology evaluation be conducted. There are two main reasons for this: (a) at the time that the initial comprehensive evaluation is conducted, there are no IEP goals by which to gauge the student’s need for assistive technology; and (b) assistive

technology is *not* a suspected area of disability, but rather a strategy that can be put in place to mediate the effects of a disability on the student's educational achievement. While it is acceptable for an education agency to include an assistive technology evaluation in a comprehensive individual evaluation, it is also possible—and more typical—that assistive technology assessments be conducted at other times and that other team members be involved. To connect assistive technology assessment and the comprehensive individual evaluation in QIAT would suggest a closer relationship between the two than is appropriate.

In summary, analysis of these data indicates that participants believed that it is important that assistive technology assessments be conducted by multidisciplinary teams that actively involve the student and family or caregivers. However, comments indicate that the item could be clearer with some rewording to provide somewhat more explicit guidance on the selection of the professional members of multidisciplinary team. The text of recommended revisions is included in Table 4.8 located at the end of this chapter.

Quality Indicator and Intent Statement 16.

Quality Indicator: Assistive technology assessments are conducted in the student's **customary environments**.

Intent: The assessment process takes place in customary environments (e.g., classroom, lunchroom, home, playground, etc.) because of the varied characteristics and demands in those environments. In each environment, district personnel, the student and family or caregivers are involved in gathering specific data and relevant information.

As shown in Table 4.7, 99.2% of the participants reported that it is *very important* (85.8%) or *somewhat important* (13.3%) that assistive technology assessments be conducted in the student's customary environments. The remaining 0.8% - 1 participant in the Consumers and Families group - ranked this item as *not important* to people with similar assistive technology interests and responsibilities. The corresponding intent statement was reported as *clear* by 111 participants (92.5%) and *unclear* by 9 participants (7.5%). Table E17 in Appendix E contains the rankings of this item by respondent group.

Thirty-one participants (25.8%) made comments on Item QI-16. Seven (22.6%) comments were general comments on this indicator, 13 (41.9%) were comments on practice, and the remaining 11 (35.5%) were potential action items directly related to wording of this item.

A sample of comments that reflect the importance of this indicator, followed by the group, are as follows:

- *Absolutely agree! I have seen the challenges of a center based evaluation that broadly defines what might work, but is not a clear picture of what will work.* (Consumers & Families)
- *This yields the best data on what the student needs to be a participant in each activity all day long and helps make evaluation ongoing. Evaluation in isolation or without knowledge of how the technology will be used on a daily basis may not work for the student. Also, the need to adapt the technology may be overlooked.* (District & Regional AT Leaders)
- *Very good! This can help require outside evaluators to get out of the clinic and into the classroom.* (State & National AT Leaders)
- *This is included in the legal definition of AT service.* (Higher Education AT Faculty)

Although generally supportive of the importance of this item, several participants expressed concern about the necessity and practicality conducting assessments in the student's customary environments. Comments included:

- *Ideal, but not always possible and perhaps not the very best in some circumstances.* (Higher Education AT Faculty)
- *An assessment taking place in a customary environment is the ideal but a good team of people familiar with the student and his needs can make it work if the assessment is unable to take place in the customary setting.* (State & National AT Leaders)
- *In the ideal perfect world all evaluations should be conducted in the customary environment (which would also be ideal and perfect). My experience is that the ideal perfect environments are few and far between.* (Higher Education AT Faculty)

The main theme of comments on practice was situations in which assessments were typically not taking place in customary environments and some included reasons why they were not. Representative comments on this theme included:

- *Many assessments are conducted clinically, away from a typical setting.* (State & National AT Leaders)
- *I have yet to find a school district willing to send a trainer into a home—let alone technology! I purchased the computer, software and equipment for my daughter to be able to do the same overlays at home as are made at school so that she can study and complete homework assignments.* (Consumers & Families)
- *At times parents want assessments done during the summer when students are not in school, this is a problem.* (District & Regional AT Leaders)
- *We still have to teach many people what “natural environments” are; one therapist actually told a parent that for kids with disabilities, a “natural environment” IS a therapy center!* (Consumers & Families)

The one participant in the Consumers & Families group who rated this item as unimportant commented that, *“There is something to be said about the ability for a continuum of service delivery models. I have seen some excellent outcomes from “outside” evaluations done “outside” the school environment when teamwork occurs.”* A key to the excellent outcomes mentioned is the phrase “when teamwork occurs”, which implies that there is active participation in the assessment process by the student and others who are in the customary environments with the student on a regular basis.

Though no comments directly suggested the development of supports and tools for this item, it appears this comment and many of the comments included in the previous section support the need for increased understanding of the importance of conducting at least some parts of every assistive technology assessment in the student’s customary environments. Without determining how the student functions in those environments and determining the particular supports and challenges offered by the environments it would seem difficult or impossible to accurately determine the assistive technology devices and services that the student requires.

The main theme of suggestions for additions or changes to the wording of this item was the desire for further definition of what could be included in *customary environments* or how that term might be expanded or contracted. Representative comments included:

- *I think it would be important to add, “in the student's customary environments at home, in school, and other places in the community (day care, after school setting, etc.). (Consumers & Families)*
- *This may also include environments that are more clinical or some new, therefore less “customary.” Sometimes data are needed that we cannot currently obtain in the natural environment. Customary would be ok if the indicator and intent were to say “as possible.” Also, may want to do assessments in new environments that student had been previously unable to access, but the AT may enable. (Higher Education AT Faculty)*
- *Don't forget references to extracurricular activities and vocational training.*
- *Add: (e.g. classroom, lunchroom, home, playground, etc.) after “customary environments” at end of INDICATOR. (Consumers & Families)*

In summary, analysis of these data indicates that conducting assistive technology assessments in the student’s customary environments is considered to be important by the majority of participants across all groups. Comments on this item indicate that some changes in the wording of this item would help people understand that customary environments extend beyond classroom walls and that students, families, and professionals work together to gather relevant information. The text of recommended revisions is included in Table 4.8 located at the end of this chapter.

Quality Indicator and Intent Statement 17

Quality Indicator: Assistive technology assessments, including needed trials, are completed within **reasonable time lines**.

Intent: Assessments are initiated in a timely fashion and completed within a time line that is reasonable as determined by the IEP team. The timeline complies with applicable state and agency requirements.

As shown in Table 4.7, 99.2% of the participants in this investigation reported that it is *very important* (83.3%) or *somewhat important* (15.8%) for assistive technology assessments, including needed trials, to be completed within reasonable time lines. The remaining participant (0.8%) in the Consumers & Families group ranked this item as *not important* to people with similar assistive technology interests and responsibilities. The corresponding intent

statement was reported as *clear* by 105 participants (85.7%) and *unclear* by 15 participants (12.5%). Table E18 in Appendix E contains the rankings of this item by respondent group.

Forty-four participants (36.7%) made comments on Item QI-17. Twelve (27.3%) comments were general comments on this indicator, 15 (34.1%) were comments on practice and six (13.6%) comments were related to future use of this item. The remaining 11 (25.0%) comments were action items that suggested revisions to the wording in this item; however, a reasonable case could be made that *all* comments (100%) on this item were potential action items because every comment addressed the idea contained in the phrase *reasonable timelines* from some perspective.

Although the ranking and the comments both indicated the importance of this item, the primary theme of the comments indicated a broad-based concern about how the term *reasonable timelines* might be interpreted and applied in practice. Within this theme, participants expressed differing understandings, points of view, experiences and concerns. Several participants commented on this importance of timelines and timely completion of assessment activities. Some were concerned that the term *reasonable timelines* might be interpreted too strictly to allow for the ongoing nature of quality assistive technology assessment. Others were concerned that the phrase *reasonable timelines* allowed too much room to delay and needed to be more specific. Several participants saw both sides of this dilemma and focused on the difficulty of applying timelines to an activity with as many variables as are typically encountered in assistive technology assessment.

Several participants underscored the importance of addressing timelines and timeliness in their comments and felt that the way the item is worded was helpful.

- *Timelines are a nagging problem in special education and one that needs to be solved.* (AT Policy Leaders)
- *I like the intent because it gives flexibility within districts.* (District & Regional AT Leaders.)
- *I like the open-endedness of this item. Timely is arbitrary. We've had assessments take a whole year while we were trying different devices/none working, but if someone wanted to get us on the state requirements, our data would have supported the timeline we were following.* (District & Regional AT Leaders)

Concern that the wording of this item may be too strictly interpreted and not provide enough time for adequate assessment is expressed in these representative comments.

- *Given the health issues many of our students face, timeliness is not always an option.* (State & National AT Leaders)
- *Some of these trials take some time. IEP teams are not always patient enough with the process. They want definitive answers like they get from Psychologists. I'm not saying we should be dragging these out forever, but let's not cut our own throats here. This doesn't allow for the occasional exception (the case that takes extra time.)* (District & Regional AT Leaders)
- *Evaluation timelines often are set at 30 days which may not be sufficient for trial use in natural environment(s).* (Higher Education AT Faculty)
- *It needs to be understood that some assessments (if you include trials) can be very lengthy, especially for slow and emergent learners. I don't want an assessment hamstrung by a 30-day timeline. The overall point, though, is valid.* (State & National AT Leaders)
- *Reasonable and timely are relative terms. I'm sure some would say our team is far beyond those requirements, but given the number of referrals & number of staff, we do work in a reasonable and timely manner.* (District & Regional AT Leaders)

The view that the wording of this item needs to be more specific is illustrated by these comments.

- *QIAT needs to be more forceful in this statement. We have to adhere to the 50 day timeline required by federal law. Trials may be built in to the process after this timeline has been met.* (District & Regional AT Leaders)
- *Although this indicator addresses the issue of timelines aligned to state/agency requirements, I can imagine that people are going to want more specific guidance on what a reasonable time is.* (State & National AT Leaders)
- *It would be nice if this were more carefully delineated. We've waited 6 months for services. We've waited three now for an assessment or any text to be scanned.*

Sometimes people don't commit to trying something and then give up when it's not utilized well. (Consumers & Families)

- *This item should specify some maximum length of time. (Consumers & Families)*
- *It would be better to specify a time line that would be considered reasonable. (Higher Education AT Faculty)*

This comment by a participant from the Consumers & Families group illustrated both sides of the dilemma:

- *This can be a sticky-wicket. Real-life experiences of parents illustrate that schools can really drag their feet in this area. At the same time, some kids need a much longer time to “experiment” with a device. If we put strict timelines for trials, a child might be really close to knowing if the device is right or not, but the device could be taken away before we know for sure!*

Interestingly, only one comment referred directly to the part of this item that identified the IEP team as the group responsible for making decisions about the scope of the assistive technology assessment and for developing a reasonable timeline for assessment activities and results that are in keeping with the needs of the student and the scope of the questions that need to be answered by the assessment. A participant from the Higher Education AT Faculty group stated:

- *I might drop “determined by the IEP team” and substitute “determined by applicable state and federal requirements.” The intent is clear, but there may be an occasional IEP team I wouldn't trust.*

Other suggestions for the revision of the wording of this item included:

- *Add the last sentence of INTENT, “The timeline complies with applicable state and agency requirements” to end of INDICATOR.*
- *Add “consistent with applicable state or federal regulations” to the end of the intent statement. Reasonable time is the wording of the federal rule, but many states have more stringent time requirements. (AT Policy Leaders)*

Comments that include suggestions for the development of materials and information for those who wish to use this item included:

- *There continues to be discussion about the difference between evaluation and equipment trials. Could be tools that would clarify that difference?* (State & National AT Leaders)
- *We need some examples, non-examples, and guidelines to help with the development of effective assessment timelines.* (State & National AT Leaders)
- *We need to understand more about “attainable expectations.” Signing the IEP on Friday does not usually mean the equipment will be available on Monday. Or should it?* (Higher Education AT Faculty)

Taken together, these comments clearly indicate the need for attention to the time-frame within which assistive technology assessments are conducted and to the development of tools that help in the alignment of thinking about how timelines are developed and applied. Most of the participants who commented on this item appear to have a picture in their own mind about timelines as it applies to their own situation and experiences, however, in at least one comment, the information that helped shape this picture was erroneous. Contrary to the comment about “*50 day timeline required by federal law,*” there is no blanket requirement in federal laws related to education. In addition, comments mentioning “*30-day timelines*” or other such specific requirements are, apparently, related to the requirements in the specific states or districts in which the participants live and work.

It was rare to find a comment that demonstrated an understanding that timelines are different in different places and circumstances, thus requiring a more general guideline within a quality indicator that was intended to be applicable and useful across individuals, agencies, and geographic locations in the United States and abroad. Furthermore, it appears that virtually none of the comments reflected the understanding that, even when state or local guidelines specify a number of days within which an assistive technology assessment must be “completed”, the IEP team can think about and decide upon what needs to happen within that time period and what might reasonably be expected to take longer. For example, the IEP team *may* believe it possible to identify and try out tools that would improve the quality and quantity of a student with a fine motor issue and may expect a report complete with trials and final recommendations within a relatively brief time. However, in the case of a student with complex needs in which there is a need to work to discover what, if any, technology might

improve the student's functional capabilities, the IEP team may expect only a preliminary report within the specified number of days as long as the report includes a plan for further assessment over a longer period of time and specifies times for periodic review.

In summary, analysis of these data indicates that participants across all groups indicated that it is important for assistive technology assessments, including needed trials, to be completed within reasonable time lines. Comments, however, focused on issues related to what might be considered a reasonable timeline and the factors that might be involved in determining reasonable timelines for assistive technology assessments. The diversity of thought expressed in the comments confirms that, as stated in the main idea of this item, in addition to following whatever legal guidelines apply to a given situation, IEP teams must think about, discuss, and decide upon the timeline within which the answers to questions being asked in the assessment can be reasonably be obtained and acted upon. Based on this analysis, no changes in the quality indicator are indicated; however, some changes in the organization of the words in the intent statement are recommended. The text of recommended revisions is included in Table 4.8 located at the end of this chapter.

Quality Indicator and Intent Statement 18.

Quality Indicator: Recommendations from assistive technology assessments are **based on data** about the student, environments and tasks.

Intent: The assessment includes information about the student's needs and abilities, demands of the environments, and educational tasks and objectives. It may include trial use of the technology in the environments in which it will be used.

As shown in Table 4.7, 99.2% of the participants reported that it is *very important* (96.7%) or *somewhat important* (2.5%) for recommendations resulting from assistive technology assessments to be based on data about the student, environments and tasks. The remaining 0.8% - 1 participant in the Consumers & Families group - ranked this item as *not important* to people with similar assistive technology interests and responsibilities. The corresponding intent statement was reported as *clear* by 107 participants (89.2%) and *unclear* by 13 participants (10.8%). Table E19 in Appendix E contains the rankings of this item by respondent group.

Thirty-six participants (30.0%) made comments on Item QI-18. Six (16.7%) comments were general comments on this indicator, nine (25.0%) were comments on practice, 14 (36.1%) comment were related to use of this indicator, and the remaining eight (22.2%) were potential action items directly related to wording of this item.

General comments on this item underscore its importance to most participants. A sample of those comments includes:

- *Assessment teams should use this indicator as their “Golden Rule”* (Higher Education AT Faculty)
- *These apply to everyone needing AT, not just “students.”* (Higher Education AT Faculty)
- *Good intent statement! The concept of real world trial interventions is very consistent with areas of clarification proposed for the next reauthorization of IDEA.* (AT Policy Leaders)

Other general comments on the content of this item, however, expressed the following concerns:

- *This seems redundant with the similar indicator for considering AT.* (Higher Education AT Faculty)
- *This indicator, like a similar one in the consideration areas, seems biased toward the SETT model.* (Higher Education AT Faculty)

It is true that Quality Indicator 10 in the Consideration area is very similar to this item. During the development of QIAT, the QIAT Consortium determined that there was a need for some redundancy across the areas contained in QIAT because, though it was not the intent that any area be used in isolation, there was a strong likelihood that this would occur in practice. Given that probability, this item was expected to be very important to both consideration and assessment of assistive technology needs. Formative feedback during development bore out this expectation, as did the very high rating of *very important* (99.2%) given to this item by participants in this survey.

Similarly, during the development there was discussion among the members of the QIAT Consortium about the strong link in between the wording of this item and the words used in the SETT Framework. (SETT is an acronym for Student, Environments, Tasks, and

Tools). Concern was expressed by this researcher—also the developer of the SETT Framework—that users of QIAT might think that item endorses the use of the SETT Framework over other models that can be used in the selection, acquisition, and use of assistive technology devices and services. The overwhelming consensus of the QIAT Consortium, however, was that regardless of their similarity to the SETT Framework, the elements in this item were the important ones and that the wording should stand as written.

Further, members of the QIAT Consortium and others who provided formative feedback during the development of QIAT believed that virtually all known models support using information about the person who will use the tools, the environments in which the tools are to be used, and the tasks for which the tools are required to guide the consideration and selection of assistive technology tools. A participant from the Consumers and Families group supported this belief by reporting regular collection of data using the assessment forms developed by the Wisconsin Assistive Technology Initiative (WATI), a statewide network of assistive technology service providers funded by the Wisconsin Department of Public Instruction. The fact that only one (0.8%) of the 120 participants in this study expressed concern about the similarity between the SETT Framework and the wording of this item further supports this belief.

The comments on practice from participants across groups indicate differing experiences with how data are collected and used. Representative comments that reflect the diversity found in practice included:

- *Data is typically collected via observation and in one session.* (State & National AT Leaders)
- *Schools consistently leave out anything that has to do with the community and the student's ability to access services there. Most schools do not see this as their responsibility.* (Consumers & Families)
- *The need for data is becoming recognized and practiced. This has been reassuring to administrators.* (State & National AT Leaders)

Other comments show that even leaders in the field have differing levels of understanding and experiences with data. Questions and concerns about data were evident across

groups but they were especially prevalent in the Consumers & Families group, as evidenced by these sample comments:

- *Does “environments” include other persons? For instance it is important to know with whom a person will be communicating to identify the appropriate communication device (system) for the person in each setting. (State & National AT Leaders)*
- *I think DATA are important, but so are OBSERVATIONS—especially the observations of parents, in the home environment, and classroom teachers. In my son's situation, an “AT Professional” might have gathered “data” on my son's use of the computer (in lieu of writing with a pencil), but I always felt the observations of the classroom teacher were more valid! Observations in those “real-life” settings are critical! (Consumers & Families)*
- *Is 'data' being defined as quantitative and qualitative? The student's experience with this (or other) technology solutions is also important. If this is their first time using a computer, that is important to note particularly if they did not perform as well as hoped. (Consumers & Families)*
- *“BASED ON DATA” is NOT IMPORTANT!! What IS important is that staff has EASY ACCESS TO THE AT TO TRY with a student. DATA may not be always be readily available to justify “continued” usage - kids can be INCONSISTENT! (Consumers & Families)*
- *Teams may want to include work samples/products from the trials along with the data. (State & National AT Leaders)*

The primary theme of comments with suggestions for additions or changes to the wording of this item were suggestions for clarifying issues related to *data*—what “counts” as data, how data are gathered, and how data are used. Participants across all groups suggested that more information was needed. Representative comments, primarily but not exclusively from participants within the Higher Education AT Faculty group include:

- *The term data has many meanings and is unclear in its use at this point. This needs to be clarified. (Higher Education AT Faculty)*
- *People need more specificity on types of data. (Higher Education AT Faculty)*

- *Data and the range of acceptable types need to be defined.* (Higher Education AT Faculty)

Although it would be unwieldy to include sufficient specific information about data within this quality indicator or intent statement, these comments suggest that if this item is to be used well, there is a strong need for the development of supports and training for assessment teams and IEP teams charged with using assessment data and recommendations to guide their decision-making. Additional comments that include suggestions about supports and training included:

- *We need samples and references for data collection and analysis. People just do not know “how” to do this!* (State & National AT Leaders)
- *I think the need for trial data collection should be stressed.* (District & Regional AT Leaders).
- *People need more information about types of data and their validity.* (State & National AT Leaders)

In summary, analysis of these data indicates that participants across all groups believed that it is highly important to base recommendations from assistive technology assessments on data about the student, environments, and tasks. However, comments indicate that there are considerable differences in what participants understand about what counts as “data” and how data are effectively gathered during an assessment and used to support recommendations and decision-making. There were many requests to add more information about data to the quality indicator and intent statement, however, because the information and exercises that it would take to build knowledge and skills about types of data and data collection strategies far exceed the scope of a quality indicator, no changes are recommended for the quality indicator. It is recommended, however, that changes be made in the intent statement and that resources be identified or developed to provide additional information about data and data collection for assessment and IEP teams. Recommended changes can be found in Table 4.8 located at the end of this chapter.

Quality Indicator and Intent Statement 19.

Quality Indicator: The assessment provides the IEP team with **documented recommendations** about assistive technology devices and services.

Intent: The recommendations from the assessment are clear and concise so that the IEP team can use them in decision-making and program development.

As shown in Table 4.7, 100% of the participants reported that it is very important (92.5%) or somewhat important (7.5%) that the assessment provides the IEP team with documented recommendations about assistive technology devices and services. The corresponding intent statement was reported as *clear* by 108 participants (90.0%) and *unclear* by 12 participants (10.0%). Table E20 in Appendix E contains the rankings of this item by respondent group.

Twenty-four participants (24%) made comments on Item QI-19. Two (8.3%) comments were general comment on this indicator, three (12.5%) were comments on practice, nine (37.5%) were comments related to use of this indicator, and the remaining 10 (41.7%) were potential action items directly related to wording of this item.

General comments on the importance of documentation to assistive technology decision-making and service delivery included:

- *Documented recommendations are important for decision-making and beyond. They are important for monitoring progress and contribute to ongoing assessment. This is particularly important as children and staff are “mobile” and next year's team may be a different set of people from this year's team. Some families are able to keep up with playing the “case manager” role and facilitate changes, communicate information from previous assessments, etc., but many parents are not able to fulfill this role, making documentation particularly important. (Higher Education AT Faculty)*
- *We could also use documentation to inform IEP goal/objective writing. (State & National AT Leaders)*

Comments on practice included concerns about current and future documentation methods and how they impact assessment processes.

- *We're fuzzy on this one - when we find a device or service that works, that gets placed in the IEP (many times as a revision). I don't think that we write up something additional. We need to ponder this one to see how it fits in our world. I guess this is where a worksheet option would help. It is an option in our district,*

but it seems like the truly competent people who already go the extra mile are the ones who fill the worksheets out, too. (District & Regional AT Leaders)

- *The issue is will the team use the information or are individuals acting alone.* (District & Regional AT Leaders)
- *I'm concerned that the "documentation" process and focus would derail and delay recommendations/evaluations beyond neuro-circuitry cognitive/physical benefit and alter the whole course of learning.* (Consumers & Families)
- *If assessment is a process and not a discrete test with clear results, then recommendations are part of a process that involves trial periods. This indicator and intent tend to reinforce the "test" idea, that there is a test with clear results and recommendations at the conclusion. I think AT assessment is not this cut and dry.* (State & National AT Leaders)

The main theme of comments relating to the use of this item focuses on the development of supports and training that would enable assessment teams to produce useful, high-quality documentation and for IEP teams to know how to use it. Representative comments include:

- *Models for this will probably be needed.* (AT Policy Leaders)
- *Without a strong professional development program in support of AT, it is my experience that the IEP team might accept recommendations that they are unable to actually implement.* (State & National AT Leaders)

The primary theme of the comments with suggestions for additions or changes to the wording of this item was a call for explanations or examples of what adequate documentation might include. A sample of comments on this theme includes:

- *I'm not sure what "documented recommendations" are. It might be better to provide a bit more information.* (AT Policy Leaders)
- *This item should include more info about what is meant by "documented". Written? With rationale?* (State & National AT Leaders)

A participant from the Higher Education AT Faculty group expressed concern about the use of the word "concise" in the intent statement and suggested its removal.

- *Is there any concern that “concise” might be misinterpreted by some users of this document? If the recommendations are clearly stated and soundly based on the data that were collected, must they be concise? I can envision some instances in which brevity would not serve the communication very well. The recommendations should be as thoroughly described as it takes to be instructive and unambiguous. I wonder if “concise” is a necessary word?*

In summary, analysis of these data indicates that participants across all groups believed that it is important that the assessment provide the IEP team with documented recommendations about assistive technology devices and services. However, comments indicate that some rewording and the addition of some examples of what might be included in adequate documentation would improve the clarity of this item and make it more useful. The text of recommended revisions is included in Table 4.8 located at the end of this chapter.

Quality Indicator and Intent Statement 20.

Quality Indicator: Assistive technology needs are **reassessed** by request or as needed based on changes in the student, environments and/or tasks.

Intent: An assistive technology assessment is available any time it is needed due to such changes or when it is requested by the parent or other members of the IEP team.

As shown in Table 4.7, 100% of the participants reported that it is very important (94.2%) or somewhat important (5.8%) for assistive technology needs to be reassessed by request or as needed based on changes in the student, environments and/or tasks. The corresponding intent statement was reported as *clear* by 107 participants (89.2%) and *unclear* by 13 participants (10.8%). Table E21 in Appendix E contains the rankings of this item by respondent group.

Thirty-five participants (29.2%) made comments on Item QI-20. Five (14.3%) comments were general comments on this indicator, 12 (34.3%) were comments on practice, four (11.4%) were comments related to use of this indicator, and the remaining 14 (40.0%) were potential action items directly related to wording of this item.

Participants in all groups supported the importance of being clear that reassessment of assistive technology needs was available when needed rather than on a specific timeline.

However, comments centered around three main concerns: 1) the ongoing nature of assistive technology assessment; 2) the student's unmet needs must be the rationale for reassessment; and 3) the student's needs cannot be met without additional assessment.

Comments across groups expressed concern that the wording of this item needed to provide a greater focus on the nature of assistive technology assessment and included:

- *It is important to know that assessment is an ongoing process that may last for some time depending on the student.* (District & Regional AT Leaders)
- *Assistive technology assessment is ongoing and sometimes additional AT needs to be added rather than just giving up something to replace it with something new.* (Consumers & Families)
- *We need to have reminders regarding the need to continue to evaluate—AT cannot be static.* (State & National AT Leaders)
- *I think the way this statement is worded tends to frame assessment as a discrete event. I would rather it focused on the idea that the assessment process is ongoing or is reassessed by request.* (State & National AT Leaders)

Some comments focused on the concern that the way this item is worded may communicate that requests for reassessment may be made without a rationale. A sample of the comments includes:

- *How is it determined when a reassessment is needed?* (AT Policy Leaders)
- *“Upon request” is important, but this request should have a specific reason—that is, determine what is no longer working/effective.* (State & National AT Leaders)
- *Reassessment may be warranted if the current AT is not meeting needs. Requests to reassess must be accompanied by a rationale which describes the ways the current AT is not meeting needs, or which describes a change in the student, environments and/or tasks.* (Higher Education AT Faculty)
- *On what bases can they request a re-assessment? Because they didn't like the first one? (even though the team accepted it and made decisions based on it.) It may be best to say that an assessment can be requested when the Student, Environment, Tasks, or available Tools, have changed significantly. Any of these*

changes would make the 'current' assessment invalid because it is based on old data. (District & Regional AT Leaders)

Participants across all groups commented on the idea that assessment is not necessary unless the student's needs cannot be met without additional assessment and expressed concern that this item may communicate that changes cannot be made unless there is a re-assessment. Representative comments include:

- *Sometimes a full assessment is not needed. Sometimes a consultation can meet the student's needs without generating a whole new assessment plan. (District & Regional AT Leaders)*
- *What's really needed? a full assessment? a reevaluation/review? (State & National AT Leaders)*
- *Some might take this to mean that they can't make any changes or try anything different without going through the entire process. I try to encourage classroom teachers to adapt whenever they see fit, document it and then share information with the OT/PT/Parent etc. the next time they see them. IEP team members may only see each other once a month. So it is important that individual team members feel empowered to try things on their own. (State & National AT Leaders)*

Two comments on practice included perceived barriers that participants believed would impact the implementation of reevaluation upon request or as needed.

- *Typically reassessments do not occur unless there is a problem with the current test. They are reactive to need, not scheduled automatically. (State & National AT Leaders)*
- *This can be difficult to comply with staff shortages and what about the summer issue, students are not in their environment? (District & Regional AT Leaders)*

Additional comments on practice from participants across groups focused on the cyclical consideration of assistive technology needs. Representative comments include:

- *I would encourage a follow-up process that includes re-assessing the effective progress of the AT accommodation. (Consumers & Families)*
- *If a student is using technology there should be an annual update evaluation to determine the effectiveness of the technology. (State & National AT Leaders)*

- *Some districts specify at the 3 yr eval and this might be included in LEA guidelines.* (State & National AT Leaders)
- *There should be a review of AT needs and current AT devices each time the IEP team meets.* (Higher Education AT Faculty)

In summary, analysis of these data indicates that participants across all groups supported the importance of being clear that reassessment of assistive technology needs was available when needed rather than on a specific timeline. However, the majority of comments on this item focused on how this would look in practice and included suggestions for additions or changes to the wording of this item. The suggestions for revisions centered around three main themes: (a) emphasizing the ongoing nature of assistive technology assessment; (b) connecting the student's unmet needs to the rationale for reassessment; and (c) determining that the student's needs cannot be met without additional assessment before an assessment is requested. In order to improve the clarity and usefulness of this item, extensive revisions to this item are recommended. The text of recommended revisions is included in Table 4.8 located at the end of this chapter.

Quality Indicators for Including Assistive Technology in the IEP

The Individuals with Disabilities education Act of 1997 (IDEA '97) requires that the Individualized Education Program (IEP) team consider assistive technology needs in the development of every IEP. Once the IEP team has reviewed assessment results and determined that assistive technology is needed for provision of FAPE, it is important that the IEP document reflects the team's determination in as clear a fashion as possible. The Quality Indicators for Assistive Technology in the IEP help the team to describe the role of assistive technology in the child's educational program.

As shown in Table 4.9, each of the quality indicators related to IEPs was ranked as either *somewhat important* or *very important* by greater than 96.7% of the participants and each of the intent statements in this section was ranked as *clear* by greater than 85.8% of the participants. Though the data indicate some range in the frequency that each quality indicator was ranked as *very important*, and the frequency that each intent statement was ranked as *clear*, a large majority of participants in each of the participant groups viewed all of the quality indicators and intent statements in this section as important to the inclusion of assistive

technology in the IEP. Tables E22 through E26 in Appendix E contain the rankings of these items by group.

Thirteen participants (10.8%) made comments on the area of Including Assistive Technology in the IEP. Seven (53.8%) comments were related to practice, three (23.1%) were comments on the content of this indicator, and the remaining three (23.1%) were potential action items that directly suggested modification or additions to this area.

A sample of comments reflecting the importance of this indicator, followed by the respondent group, are as follows:

- *Use of the Quality Indicators for Documentation has provided support for the current direction from our state education agency in best practice.* (State & National AT Leaders)
- *Thank you!!!!!!! You really do address the historic problems!* (Consumers & Families)

Comments on practice by participants across groups also underscored the importance of this area as well as some of the pitfalls that teams face when attempting to include assistive technology in the IEP in a way that guides implementation. A sample of comments included:

- *Inserting technology as the tool into goals and objectives is a way to document the need for usage of the technology as well as to require documentation in order to show measurable outcomes.* (AT Policy Leaders)
- *We must honor quality evaluations, be specific in the implementation and give children maximum access to general education curriculum.* (Consumers & Families)
- *Documentation in the IEP remains a pressing need among educators in this state—the direction from LEAs has not been clear, and current best practice differs from that provided by the state agency in the past.* (State & National AT Leaders)
- *I observe that the reality of the actual implementation is very different than the spirit or intent of the legislation. Educators often tell me how they are simply not permitted to mention, document nor recommend assistive tech because of cost. I don't believe the legalities are of primary importance to administrators. In fact, I*

believe administrators find ways to circumvent the issues, thus resulting in a lack of policy or support. (State & National AT Leaders)

- *I think IEP teams generally don't document as well as they should because they think they know less than they actually do and are afraid of being thought of as frauds. I'm finding that if we provide the some handouts and supports for them, they are generally willing—even appreciative. (District & Regional AT Leaders)*

The comments on changes to this area included minor edits and the suggestion by a participant in the State & National AT Leaders group that the word “child” should be replaced with the word “student” throughout the QIAT document. Currently, in the QIAT document, the word “student” is used frequently, however, there are times when legislation is referred to that specifically uses the word “child”. In these instances, the word “child” has been used in the document to reflect the wording of the legislation.

In summary, the quantitative and qualitative data gathered in the overview of this area provide the means to draw several conclusions. First, the participants in this study found each of the *Quality Indicators for Including Assistive Technology in the IEP* to be important to the provision of quality assistive technology services and found each of the intent statements to be clear. Second, based on the comments on specific indicators, some changes in the wording and in the order of the items included in this area would be helpful to potential users. Third, as with the other areas, it is likely that supporting tools (e.g. samples, examples, and non-examples) would assist potential users of this area of QIAT. Specific recommendations for revisions are included in Table 4.10 and recommendations for reordering the items in this section are included in Table 4.11, both of which appear at the end of this chapter. Suggestions for the development of supporting tools appear in the following chapter.

The remainder of this section presents and discusses the results related to importance and clarity of each quality indicator and intent statement pair contained in the area of Including Assistive Technology in the IEP.

Quality Indicator and Intent Statement 21.

Quality Indicator: The education agency has **guidelines for documenting** assistive technology needs in the IEP and everyone on the IEP team is aware of them.

Intent: Education agencies give instructions to IEP teams as to how IEPs should be written. These instructions include guidance about documentation of assistive technology needs. Districts give direction to IEP teams about how to document assistive technology as a related service, supplementary aid or service, goal, objective etc.

As shown in Table 4.9, 97.5% of the participants in this investigation reported that it was *very important* (85%) or *somewhat important* (12.5%) for education agencies to have guidelines for documenting assistive technology needs in the IEP and for everyone on the IEP team be aware of them. One participant (0.8%) in the Consumers & Families group ranked this item as *not important* to people with similar assistive technology interests and responsibilities. Two participants—one in the District & Regional AT Leaders group and one in the Higher Education AT Faculty group—ranked the importance of this item as *unknown*, however, neither participant added a comment. The corresponding intent statement was reported to be clear by 112 participants (93.3%) and unclear by 8 participants (6.7%). Table E22 in Appendix E contains the rankings of this item by respondent group.

Thirty-two participants (26.7%) made comments on Item QI-21. Four (12.5%) comments were general comments on this indicator, 10 (31.3%) were comments on practice, 11 (34.4%) were comments related to use of this indicator, and the remaining 7 (21.9%) were potential action items directly related to wording of this item.

General comments on this item underscore its importance to people across groups. A sample of those comments includes:

- *The guidance is much needed but must be written so as to not limit or discourage open discussion of AT consideration and does in no way limit the authority of the IEP teams to commit resources and make final decisions.* (Consumers & Families)
- *If it's not written down, it is not done—a mantra for our District.* (District & Regional AT Leaders)
- *It is important that general educators are aware of what is available for AT.* (District & Regional AT Leaders)

- *It is important for parents to be familiar with the guidelines so they are better equipped to participate in a collaborative manner with the IEP team. (Higher Education AT Faculty)*

Comments on practice had two main themes and demonstrated that participants had diverse experiences with inclusion of assistive technology in the IEP. The first theme focused on examples of practice that underscored the importance of broadly understood guidelines. The second theme, on the other hand, centered around barriers in practice and concerns about whether broad understanding was necessary. Sample comments on practice that underscored importance included:

- *Parents seldom have any knowledge of, or input into, the creation of their child's IEP. When you say "team," I see the parent as a member of the team—schools don't. (Consumers & Families)*
- *This is definitely an area of improvement for my state!! (State & National AT Leaders)*
- *At times it is hard to find AT in the IEP, since it can go many places. (District & Regional AT Leaders)*
- *A special effort needs to be made to make sure regular education teachers are informed. I have personally seen many times when a regular education teacher has not been given access to a student's IEP. (Consumers & Families)*
- *There continue to be many questions about this among special educators. Some districts continue to address documentation by saying "don't do it"—we will need to continue to provide information on best practice. (State & National AT Leaders)*

Comments on the second theme related to practice included:

- *Goal writing—now there's a toughie. I don't think administration is going to be able to give guidance on how to write good AT goals. They can probably give some general info—but, very tough to give specific guidance. (State & National AT Leaders).*
- *I'm not sure that "everyone" on the IEP team needs to be aware of them; it might be enough that the specialists are able to provide the necessary information to the rest of the team. (AT Policy Leaders)*

- *I don't know if everyone on the team needs to be aware. It may be more reasonable that at least one member of the team is aware.* (Higher Education AT Faculty)

Although IDEA does not specify a particular place where assistive technology must be written in the IEP, and it may be difficult for administrators to determine how to help IEP teams with the development of IEPs that include appropriate goals and services, they cannot be excused from this responsibility. The difficulty that has been encountered with the knowledge of how to include assistive technology in the IEP being primarily the responsibility of specialists is that, with the advent of the requirement to consider the assistive technology needs of every student with disabilities during the development of the IEP, there are seldom, if ever, enough specialists to go around. Smaller districts may not even have an assistive technology specialist and, even if they do, it is unlikely that the specialist would be able to lead all of the assistive technology discussions that must take place and be appropriately documented. In large districts—even those with several specialists with knowledge and skills in assistive technology—it is a virtually impossible task to provide the level of support that is needed by every IEP team.

The continuation of a model of assistive technology service delivery in which knowledge about assistive technology is primarily invested in a few specialists can leave unprepared and unsupported IEP teams who make uninformed decisions about assistive technology, use public funds for underutilized or abandoned devices, or require the provision of services that have little or no positive impact on student achievement. QIAT supports the belief that, with clearly developed guidelines for how to include assistive technology in the IEP and high expectations that they will be followed, IEP teams will be better informed and, thus better able to adequately address assistive technology in the development of the IEP and document their decisions in a way that supports effective acquisition and use.

Comments on the need for the development of supports and training that could assistive with the use of this item included:

- *Teams still need A LOT of training in this area!* (District & Regional AT Leaders)
- *Meeting “assistive technology needs” includes an implementation plan and not just the “stuff?” This is not always clear to IEP teams. They often think that identifying the stuff is the only requirement and then the device(s) gets abandoned*

because supporting services and implementation strategies were not clearly documented in the IEP. (State & National AT Leaders)

- *Teams need to understand that documentation should include the role the AT will play in the taking of State or district-wide assessments. (Consumers & Families)*

The participant from the Consumers & Families group who rated this item as *not important* also provided some information about supports that may be needed for effective implementation of QIAT with the following comment: *At what point and how are families included as members of the IEP Team? I don't like the wording chosen (for this) item because it doesn't appear to be inclusive to families.*

Interestingly, the survey ID number of this participant can be connected to many of the *not important* rankings in this survey with similar comments accompanying each ranking. This participant apparently missed the section of the introduction to QIAT that included the underlying principle that *assistive technology efforts, at all stages, involves on-going collaborative work by teams which include families and caregivers, school personnel, and other needed individuals and service agencies*. It is the clearly stated intention that families and caregivers be included in all phases of assistive technology service delivery, thus to reduce redundancy, this is not reiterated in each area or item. This comment is considered unfounded and similar comments will not be addressed further in this analysis of the results of this investigation. However, if a participant in an investigation were able to disregard the introduction and the important information contained in it, it is likely that more casual users of QIAT may do the same. Materials that are developed to provide training and support on QIAT need to determine a way to make the underlying principles that form the foundation for understanding QIAT more explicit and obvious to users.

Two themes emerged from the analysis on the comments that included suggestions for additions or changes to the wording if this item: wording about legal requirements for consideration; and the need for clarification or elaboration on the word “category”, as illustrated by the following comments:

- *Awareness of guidelines (in the Indicator) is not the same as guidance and direction (in the intent). I recommend making the meaning of these two statements more similar. (Higher Education AT Faculty)*

- *Perhaps stronger language needed—someone on the team must be more than “aware” they must know how to meaningfully apply the guidelines. (State & National AT Leaders)*
- *I think this INTENT could stop at “. . .how to document assistive technology.” Unless we are planning on making a requirement that “AT is documented as _____” listing all the possibilities muddies the water. For instance, our county DOES NOT list AT as a goal or objective. We look at AT as a method to reach the Goals. (District & Regional AT Leaders)*

In summary, analysis of these data indicates that the majority of participants in this investigation believed that it is important for education agencies to have guidelines for documenting assistive technology needs in the IEP and that IEP teams are aware of and use them. Although greater than 85% of the participants indicated that the intent statement was clear, when comments were added to the analysis, the combined data indicated the need for some revisions to the wording of this item to provide greater flexibility. Specific recommendations for revisions are included in Table 4.10, which appears at the end of this chapter, and suggestions for the development of supporting tools appear in the following chapter.

Quality Indicator and Intent Statement 22.

Quality Indicator: Assistive technology is included in the IEP in a manner that provides a **clear and complete** description of the devices and services to be provided and used.

Intent: IEPs are written in such a manner that everyone who attended the IEP meeting and other people who might need to use the information to implement the plan understand what is to be done. IEPs are clearly written with as little “jargon” as possible. They give a clear picture of the devices and services which the IEP team determined were necessary.

As shown in Table 4.9, 100% of the participants in this investigation reported that it is *very important* (91.7%) or *somewhat important* (8.3%) for assistive technology to be included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used. The corresponding intent statement was reported as *clear* by 103 participants (85.8%) and *unclear* by 17 participants (14.2%). Table E23 in Appendix E contains the rankings of this item by respondent group.

Thirty-eight participants (31.7%) made comments on Item QI-22. Two (5.3%) comments were general comments on this indicator, five (13.2%) were comments on practice, 25 (65.8%) were comments related to use of this indicator, and the remaining six (15.8%) were potential action items directly related to wording of this item.

A comment on this item by a participant in the Higher Education AT Faculty group highlights the importance of including a full description of needed assistive technology devices and services in the IEP: *This is an excellent item. It is interesting to note that readers are told here that a quality Indicator is a “clear and complete” description, but in the Assessment section they are told that the recommendations should be “clear and concise.” All are better served with a “complete” description, whether or not it can be “concise.”*

Although the ranking and the comments indicated the importance of this item to all groups, the comments showed broad-based concern across groups about how this item would be interpreted and used in practice. Two primary themes emerged from comments on practice and use: (a) exactly *what* should be included in the IEP, and (b) what wording should or should not be used. Within each of these themes, participants expressed differing understandings, points of view, experiences and concerns.

Representative comments that reflected concerns about what should be described in the IEP included:

- *Everything included in the IEP should be associated/relevant to acquisition of specific goals/objectives/outcomes.* (District & Regional AT Leaders)
- *The device description should always include the necessary features of said device that meet the identified needs of the student.* (State & National AT Leaders)
- *Should include the when, where, and how AT will be used.* (State & National AT Leaders)
- *In this, or some other indicator, where the child can use the device needs to be spelled out. In other words, that the child will use the device in school, at home, in other settings (after school program, day care, preschool, etc.). Too many educators get ugly and tell parents the device cannot leave the school building!* (Consumers & Families)

- *A clear indication of what is expected might contribute to giving IEP team members and the student direction as they implement the plan. (Higher Education AT Faculty)*
- *Educators need to understand that part of the IEP “implementation plan” needs to include details about the AT implementation plan. People seem to check off the “stuff,” but miss the service follow-through that must take place for AT implementation to be successful. (State & National AT Leaders)*
- *Might want to add some specifics re: maintenance, training, specifically if the services are intended to be described so a total picture is obtained. These issues are integral to program success. (AT Policy Leaders)*

Illustrative comments on the theme of what wording should or should not be used in the IEP included:

- *If the IEP recommends a specific device by name, then that is the only device that may be purchased for the student. A generic description of what the device needs to be able to do, allows the purchaser to decide among several devices that may offer a variety of optional capabilities. (AT Policy Leaders)*
- *How do we do this without naming devices? I've been told forever not to name the device, but to outline the characteristics of the device the student needs. (District & Regional AT Leaders)*
- *Text to speech software or brand name? Is this list a shopping list or a mandate? (Higher Education AT Faculty)*
- *Some might interpret this guidance as saying that every AT item must be named explicitly. We know that sometimes it is better to refer to a class of tools or strategies so that there is appropriate flexibility in moving among various options or being able to adopt something more appropriate without having to reconvene the team. (AT Policy Leaders)*
- *I think it needs to be clear that brand name devices are not needed to be named to get the appropriate device or service. . Someone may write only this or that is appropriate when there may be a light to mid tech solution. (State & National AT Leaders)*

- *There must be no fear or concern over listing the name or manufacturer of the device. At times, only a specific device will assist a student. Too often, district personnel are reluctant to write that information on the IEP.* (Consumers & Families)
- *This is absolutely critical. I have had to fight to have specific names of hardware and software included in my daughter and others IEPs. The commitment to the process of AT evaluation and trials is a critical step to identifying the appropriate and specified AT devices, software or services. Otherwise we end up with generalized descriptions such as “adaptive math software” instead the name of the one that is needed.* (Consumers & Families)

Although the questions and comments included raise important points on this controversial issue, it is not the intention of QIAT to provide the specifics of how any quality indicator would be manifested in a particular location. Rather, QIAT’s purpose is to provide users with brief descriptive guidelines that can help them participate in the development and maintenance of quality assistive technology services. Thus it is expected that people use QIAT to guide their collaborative efforts to identify and operationalize the specifics that would be appropriate and useful in addressing and meeting the assistive technology needs of their students. It is certain, however, that QIAT could assist in the development of examples and illustrations that provided a range of ways that assistive technology could be included in the IEP as a helpful support to IEP team members.

It would be both unwieldy and beyond the purpose of QIAT to include sufficient specific examples within this quality indicator and intent statement. These comments suggest, however, that there is a strong need for the development of supports and training that would increase the capacity of IEP team members to include assistive technology in IEPs in a useful way. Additional comments that include suggestions about supports and training included:

- *The end product is dependent on the writers. IEP writers need to know how to write so that someone new to the student will know exactly what is expected in terms of AT use/services.* (District & Regional AT Leaders).
- *People need to be able to see how local policy impacts how the IEP is created and think through how to make that policy work best.* (State & National AT Leaders)

Several participants suggested revisions in the actual wording of this item. Representative comments within the group included:

- *It is worth emphasizing that the AT has to be appropriate for the child's needs. Maybe putting the word "specific" before devices and services or revising the intent statement could make it clearer that while a particular brand name does not need to be specified, the characteristics of the AT must be documented sufficiently to ensure that the student obtains the appropriate devices.* (AT Policy Leaders)
- *The intent is too wordy.* (State & National AT Leaders)
- *How about with no jargon—any of it can put off parents.* (Consumers & Families)

In summary, analysis of these data indicates that all participants across all groups believed that it is important for assistive technology to be included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used. However, comments indicate that there are considerable differences in what participants believed about how this item should be interpreted and used in practice. Participants expressed differing understandings, points of view, experiences and concerns about (a) *what* should be included in the IEP, (b) how *complete* descriptions should be, and (c) the wording that should or should not be used in IEPs. There were many requests to add more specific information to the quality indicator and intent statement; however, the information and exercises that it would take to build knowledge and skills about including assistive technology in the IEP far exceeds the scope of a quality indicator. Consequently, it is recommended that resources be identified or developed to provide support for IEP teams in their efforts to include assistive technology in the IEP in a more appropriate fashion. Although it is not recommended that specifics be added to QI-22, changes to the wording are recommended based on the concerns expressed throughout this section. Recommendations for revisions are included in Table 4.10, which appears at the end of this chapter, and suggestions for the development of supporting tools appear in the following chapter.

Quality Indicator and Intent Statement 23.

Quality Indicator: Assistive technology is used as a **tool to support achievement of IEP goals** and objectives as well as participation and progress in the general curriculum.

Intent: There should be a clear relationship between assistive technology devices and services included in an IEP and the goals and objectives developed by the team. Most goals and objectives should be developed before decisions about assistive technology use are made.

As shown in Table 4.9, 98.3% of the participants reported that it is *very important* (90%) or *somewhat important* (8.3%) for assistive technology to be used as a tool to support achievement of IEP goals and objectives as well as participation and progress in the general curriculum. Two participants—one in the AT Policy Leaders group and one in the Higher Education AT Faculty group—ranked the importance of this item as *not important* to people with assistive technology interests and responsibilities similar to their own. The corresponding intent statement was reported as *clear* by 107 participants (89.2%) and *unclear* by 13 participants (10.8%). Table E24 in Appendix E contains the rankings of this item by respondent group.

Forty-two participants (35.0%) made comments on Item QI-23. Ten (23.8%) comments were general comments on this indicator, 13 (31.0%) were comments on practice, two (4.8%) were comments related to use of this indicator, and the remaining 17 (40.5%) were potential action items directly related to wording of this item.

General comments on this item underscore its importance to participants across groups. Sample comments included:

- *It is really easy to fall into the trap of viewing AT as an end in itself.* (Higher Education AT Faculty)
- *It is important for all to understand that at helps to even out the “learning field” for all students.* (District & Regional AT Leaders)
- *Well stated! The second sentence in the intent statement is critical to remember for the IEP process to be successful.* (AT Policy Leaders)
- *THIS IS WHAT IT IS ALL ABOUT!!!* (Consumers & Families)
- *I want this tattooed on my forehead!* (District & Regional AT Leaders)

Three main themes emerged from the comments on this item: (a) goals for technology use and goals for learning to use technology, (b) the development of goals and objectives before making assistive technology decisions, and (c) the use of the word “most” in the intent statement. The first theme was reflected in the comments of several people, most notably the

two participants who indicated that it was *not important* that assistive technology be used as a tool to support achievement of IEP goals and objectives, and participation and progress in the general curriculum. Their comments provided some insight into the rationale for their rankings.

- *This seems like an unnecessary complication.* (AT Policy Leaders)
- *This seems overly restrictive. Technology use may be a goal as well as a tool.* (Higher Education AT Faculty)

Although it is certainly reasonable that learning to use technology appropriately could be the focus of a goal or several goals on a student's IEP, there is a difference between the words "technology use" in the comment and words "use technology" in this item. Even if a student's IEP includes goals for learning to use the technology, the *purpose* of learning to use the technology in education is so that the technology can be used by the student to achieve IEP goals and objectives and to foster participation and progress in the general curriculum.

Other comments on the same theme included:

- *Shouldn't there be a clear relationship between the identified needs as well?* (AT Policy Leaders)
- *Does this mean other goals are not appropriate? Independence? Transitional goals?* (Higher Education AT Faculty)
- *Schools are not bound by any laws to provide "progress" in the curriculum, just "access to" it. We can't impose requirements different from what the law clearly states.* (District & Regional AT Leaders)

It is not the intent of this item that assistive technology be connected to only academic needs. These are interesting comments from leaders because the Individuals with Disabilities Education Act, as reauthorized in 1997, is clear that the IEP is to be developed for each student with disabilities in a way that addresses unmet needs in all areas *and* is aligned to the general curriculum. Everything on the IEP should have a clear connection to the student's identified needs whether those needs relate to academic functions (e.g. reading, writing, etc.), communication, independence, mobility, or any other functional area. In addition, transition plans must be in place for all students with disabilities beginning no later than age 16 and, for many students, addressing assistive technology in the transition plan is essential for an effec-

tive transition. Finally, with the advent of the No Child Left Behind statute, “access” is no longer enough. Schools must demonstrate “progress” for *every* child.

A sample of comments on the development of goals and objectives before making assistive technology decisions development of goals and objectives included:

- *Many objectives and goals incorporating AT are written because they become realistic through the use of AT. Thus, they would not be reasonable to write without knowing AT options! This creates the clear relationship between AT and the educational goals! But then the intent statement says the opposite!* (Higher Education AT Faculty)
- *Paper work is in the wrong order to do this, at least in my case.* (District & Regional AT Leaders)
- *Sitting here, I can't think of a goal that would be developed AFTER the AT decisions. (I'm not saying there are none - just that they seem to be very few and far between. Maybe that needs to be pointed out in the INTENT.)* (District & Regional AT Leaders)

A sample of comments that included concerns about the use of the word “most” in the intent statement included:

- *Most? Shouldn't that be “All”?* (Higher Education AT Faculty)
- *Examples of most?* (State & National AT Leaders)
- *The statement about “most goals and objectives” provides for speculation about circumstances that might be excluded under the “most” umbrella.* (AT Policy Leaders)

On the other hand, a participant in the AT Policy Leaders group clearly answers these concerns with the comment, “*Sometimes we might need specific AT goals and objectives designed to enable the student to learn to use the AT.*”

Taken together, the diversity of comments on all three themes indicates a need for building the capacity of IEP teams to develop effective goals and objectives that address the identified needs of students with disabilities. Further there is a strong need for supports and training that will help teams include assistive technology in the IEP in a way that is clearly

connected to the goals and objectives designed to address identified needs and progress in the general curriculum.

Comments that included suggestions for changes to the wording of this item ranged from minor changes to indicate emphasis to changing the order of this item within the area. These comments included:

- *The wording of this Indicator deviates from that of the others. It does not refer the reader to “documentation in the IEP,” which is the topic of this section. It refers to practice, rather than documentation of the practice. (Higher Education AT Faculty)*
- *I would place this one before QI-22. (State & National AT Leaders)*
- *Change “as well as” in the indicator to “and to support the student's” Delete the statement “Most goals and objectives should be developed before decisions about assistive technology use are made” from the intent statement. Does not contribute to the intent statement, is not required in IDEA or other statute, only provides for speculation about circumstances that might be excluded under the “most” umbrella. (AT Policy Leaders)*
- *Add another sentence to the intent. “However, this does not preclude the development of additional goals, especially those related to using the AT appropriately.” (Higher Education AT Faculty)*

In summary, analysis of these data indicates that it is important to most participants in all groups for assistive technology to be used as a tool to support achievement of IEP goals and objectives as well as participation and progress in the general curriculum. However, comments indicate that there is considerable misunderstanding about how assistive technology needs relate to IEP goals and the general curriculum. In order to increase the utility of this item while maintaining its main idea and purpose, major rewording is recommended. Additionally, development of supports and training that build knowledge and skills in this area are strongly recommended. The text of recommended revisions is included in Table 4.10 at the end of this chapter, and the suggestions for the development of supporting tools appear in the following chapter.

Quality Indicator and Intent Statement 24.

Quality Indicator: IEP content regarding assistive technology use is written in language that describes **measurable and observable outcomes**.

Intent: At the point of periodic review, the IEP is used to measure whether the district met its commitments and whether the educational goals set for the child were appropriate. Content which describes measurable and observable outcomes for assistive technology allows the team to review the success of the plan.

As shown in Table 4.9, 96.7% of the participants reported that it is *very important* (85%) or *somewhat important* (11.7%) for IEP content regarding assistive technology use to be written in language that describes measurable and observable outcomes. Four (3.3%) participants—one each from each group except the Higher Education AT Faculty group—ranked this item *as not important* to those with assistive technology interests and responsibilities similar to their own. The corresponding intent statement was reported as *clear* by 103 participants (85.8%) and *unclear* by 17 participants (14.2%). Table E25 in Appendix E contains the rankings of this item by respondent group.

Thirty-four participants (28.3%) made comments on Item QI-24. Seven (20.6%) comments were general comments on this indicator, four (11.8%) were comments on practice, one (2.9%) comment related to use of this indicator, and the remaining 22 (64.7%) were potential action items directly related to wording of this item.

General comments on this item underscore the importance of writing assistive technology in the IEP in a way that connects to observable, measurable outcomes. A sample of those comments includes:

- *This is an excellent item.* (Higher Education AT Faculty)
- *Absolutely!! And results should be evaluated at annual IEP meetings with appropriate adjustment to services and AT use.* (AT Policy Leaders)
- *Yes!! Measurable benchmarks are critical.* (Consumers & Families)
- *I think this is an area that warrants OSEP supported research because information about measuring assistive technology outcomes in the context of education is limited!* (AT Policy Leaders)

Although these comments and the rankings on this item clearly support the importance of connecting assistive technology to observable, measurable outcomes, the majority of the comments on this item expressed concern that its wording communicated that the observable, measurable outcomes related to the use of assistive technology rather than to the goals and objectives established in the IEP. A sample of comments included:

- *I'm not sure the wording is correct here. The measurable outcomes relate to the goals and objectives, not to AT. AT devices and services are tools designed to help meet the outcomes for the goals and objectives.* (Higher Education AT Faculty)
- *Observable outcomes for assistive technology or student outcomes that include the use of AT as an intervention? IEPs should be student learning goals, not process and intervention goals. Perhaps a couple words are missing - "observable student learning outcomes related to the assistive technology."* (Higher Education AT Faculty)
- *The review ought to be used to determine if the student met his or her goals and, if not, whether those goals remain appropriate. The way the intent statement is worded supports the misguided notion that the IEP is simply a legal tool for the district to use to demonstrate compliance with the IDEA, rather than a document that is meant to be the blueprint for the student's education. The meaning of the final sentence is unclear. Is success of the plan the district's meeting of its commitments or the student's achievement of the goal? The two are not necessarily the same thing.* (AT Policy Leaders)
- *To me this sounds like the AT is the goal rather than the educational content. I like to know if the student met the IEP goal, and if AT was a contributing factor to that success.* (State & National AT Leaders)
- *The goals areas in which the AT is used should be measurable.* (Consumers & Families)

Three of the four participants who ranked this item as *not important* expressed the same concern. Their comments included:

- *If the AT is a tool to achieve the goals, then we measure the achievement of the goal. If it wasn't achieved we discuss the possibility that the device is not suffi-*

cient, and proceed from there. The ONLY measurable items in an IEP should be Goals and Objectives. I totally disagree with the wording of this INDICATOR. I see what you are trying to do, but this isn't the way to do it. (District & Regional AT Leaders)

- *IEPs should always be written so that AT is a means to succeed with the goals. (Consumers & Families)*
- *All IEP goals and objectives are supposed to have measurable outcomes. (State & National AT Leaders)*

In summary, analysis of these data indicates that the majority of participants across all groups believed that it is important that IEP content regarding assistive technology use is written in language that describes measurable and observable outcomes. However, comments indicated that there is concern across all groups that the wording of the item did not clearly communicate that what was to be observable and measurable was student progress on the goals and objective for which the assistive technology was being used rather than to simply the use of the assistive technology itself. These data also indicate that the item requires rewording to increase clarification. In addition, the comments also prompted a change in the sequence of the indicators related to IEPs. Specific recommendations for revisions are included in Table 4.9 and reordering is detailed in Table 4.10, which appear at the end of this section. Suggestions for the development of supporting tools appear in the following chapter.

Quality Indicator and Intent Statement 25.

Quality Indicator: All **services** needed to implement assistive technology use are documented in the IEP.

Intent: IDEA lists a variety of services (i.e. evaluating, customizing, maintaining, coordinating services, training for the child and family, technical assistance for professionals) which must be provided to support the child's use of an assistive technology device. IEPs that include assistive technology devices often fail because inadequate services are provided. It is important that the IEP includes services as well as devices.

As shown in Table 4.9, 99.2% of the participants reported that it is *very important* (89.2%) or *somewhat important* (10.0%) for all services needed to implement assistive technology use to be documented in the IEP. The remaining participant in the AT Policy Leaders

(0.8%) group ranked this item as *not important* to people with similar assistive technology interests and responsibilities. The corresponding intent statement was reported as *clear* by 109 participants (90.8%) and *unclear* by 11 participants (9.2%). Table E26 in Appendix E contains the rankings of this item by respondent group.

Thirty-four participants (28.3%) made comments on Item QI-25. Six (17.6%) comments were general comments on this indicator, 12 (35.3%) were comments on practice, two (5.9%) were comments related to use of this indicator, and the remaining 14 (41.2%) were potential action items directly related to wording of this item.

General comments on this item underscore its importance to most participants. A sample of those comments includes:

- *Most important and so often not attended to!* (Consumers & Families)
- *The absence of one or more of these is often responsible for the failure of AT to prove effective in providing access to the curriculum.* (AT Policy Leaders)

The main theme that emerged from comments on practice from participants across groups focused on barriers to including assistive technology services in IEPs. Representative comments on this theme included:

- *The field lacks adequate tools for this task.* (Higher Education AT Faculty)
- *Many IEP teams don't know what they will need at the time they are writing the IEP. I think it is important for team members to know what resources are available to them and that they have permission to seek out the help they need when they need it.* (State & National AT Leaders)
- *This is not practical for most IEPs.* (District & Regional AT Leaders)
- *Sometimes services need to be determined as the learner develops the skills needed to address the curriculum via the tech.* (State & National AT Leaders)
- *Time seems to be the issue for most people.* (District & Regional AT Leaders)
- *It is hard when staff is spread thin—what helps us is to have a time line and a “job completion” sheet.* (District & Regional AT Leaders)
- *Procurement is often an issue.* (Consumers & Families)

These comments about reasons *not* to include services in the IEP indicate a strong need for increased support and training for IEP team members to increase their understanding of the importance of including services in the IEP and the rationale for doing so.

The participant who ranked this item as *not important* to people with similar assistive technology interests and responsibilities and one other participant each suggested that this item be deleted because its content was included in other quality indicators in this area. This comment was also made by one participant in the AT Policy Leaders group. Other comments with suggestion revision or changes to the wording of this item included:

- *This one is stated in a very negative way. The intent positively as are most other intents?* (Higher Education AT Faculty)
- *I'd like to substitute "delineated" for documented in QI.* (AT Policy Leaders)
- *Change the last sentence to read, "It is important that the IEP includes a plan for the implementation, maintenance, and adequate training of all AT devices." Be more specific.* (Consumers & Families)
- *Could repair guidance or back-up systems also be referenced here?* (AT Policy Leaders)

In summary, all but one participant in this investigation believed it to be important that services needed to select, acquire, and use assistive technology be documented in the IEP. Although two participants believed this item to be included in at least one other item, the main idea of this item differs from those of others in which services are referenced. The main idea of QI-25 is that documentation of assistive technology in the IEP is not only the AT devices that a student requires, but also the AT services that are needed. A decision was made by the QIAT Consortium during the development of QIAT that, to the greatest extent possible, only one main idea would be contained in each quality indicator, therefore it is recommended that this item remain separate.

Several comments that mentioned barriers to achievement implementation of this item indicate that there is a strong need to develop supports and training that can provide IEP team members with opportunities to increase their understanding of the importance of including assistive technology services in the IEP and provide guidance on how to do it effectively. Because some comments suggested that revision in the wording of this item would increase the

clarity and the utility of this item, some minor rewording is recommended. Specific recommendations for revisions are included in Table 4.10, which appears at the end of this section, and suggestions for the development of supporting tools appear in the following chapter.

Quality Indicators for Implementation of Assistive Technology Services

Assistive technology implementation pertains to the ways that assistive technology devices and services, as included in the IEP (including goals/objectives, related services, supplementary aids and services and accommodations or modifications) are delivered and integrated into the student's educational program. Assistive technology implementation involves people working together to support the student using assistive technology to accomplish expected tasks necessary for active participation in customary educational environments.

As shown in Table 4.12, all but one of the quality indicators in this area was ranked as either *very important* or *somewhat important* or by greater than 97% of the participants. Quality Indicator 29 received the lowest ranking of importance of any item in this study; however, this item was still ranked as *somewhat important* or *very important* by greater than 92% of participants. Each of the intent statements in this section was ranked as *clear* by greater than 84% of the participants. Though the data indicate some range in the frequency that each quality indicator was ranked as *very important*, and the frequency that each intent statement was ranked as *clear*, a large majority of participants in each of the participant groups viewed all of the quality indicators and intent statements in this section as important to the implementation of assistive technology services. Tables E27 through E33 in Appendix E contain the rankings of these items by group.

Eight participants (5.8%) made comments on the area of Implementation of Assistive Technology Services. Two (25%) comments were related to practice, two (25%) were comments on the content of this indicator, one (12.5%) were related to use of this area, and three (37.5%) were potential action items that directly suggested modification or additions to this area.

Comments on the content of this area reflect the importance of the quality indicators contained in this area to the implementation of assistive technology services. Following is a sample of the comments, followed by the participant's group.

- *Excellent!* (AT Policy Leaders)

- *Clear and essential!* (Consumers & Families)

When speaking of the practice of assistive technology implementation, a participant from the District and Region AT Leaders group contributed a comment that is frequently heard in the field.

- *I think if there were a hierarchy of supports, this would be one of the first started/done. We implement—just don't always do the paperwork, justification, re-eval, etc. But, it does need to be all-inclusive.*

A comment by a participant in the Higher Education AT Faculty group suggests the need for a clarifying revision to this area with the following comment.

- *This section does not address the implementation issue of “continuity of use” of an assistive technology device. Is the technology available to the student in the community? In the home?*

In summary, the quantitative and qualitative data gathered in the overview of this area provide the means to draw several conclusions. First, the participants in this study found each of the Quality Indicators for Implementation of Assistive Technology Services to be important to the provision of quality assistive technology services and found each of the intent statements to be generally clear. Second, though there is a high rate of agreement on importance, a greater number of participants found some of the items in this area to be of lesser importance than other items in the study. Ranking and comments about individual items will be presented and discussed later in this section. Third, comments with concerns about the use of items provided by education agencies in environments other than the classroom or on the school campus indicate a need for the development of supporting tools and training that can further the understanding of when and where assistive technology devices and services must be provided by education agencies. Further, tools and training are needed to enhance the ability of families and service providers who sit on IEP teams to work together effectively to consider whether or not those devices are required in other environments for the provision of a free, appropriate public education. Specific recommendations for revisions are included in Table 4.13 located at the end of this chapter, and suggestions for the development of supporting tools appear in the following chapter.

The remainder of this section presents and discusses the results related to importance and clarity of each quality indicator and intent statement pair contained in the area of Implementation of Assistive Technology Services.

Quality Indicator and Intent Statement 26.

Quality Indicator: Assistive technology implementation proceeds according to a **collaboratively developed plan.**

Intent: Following IEP development, all those involved in implementation work together to develop a written action plan that provides detailed information about how the assistive technology will be used in specific educational settings, what will be done and who will do it.

As shown in Table 4.12, 97.5% of the participants in this investigation reported that it was *very important* (85.83%) or *somewhat important* (11.67%) for assistive technology implementation to proceed according to a collaboratively developed plan. Two participants (1.7%) in the Higher Education AT Faculty group ranked this item as *not important* to people with similar assistive technology interests and responsibilities. One participant (0.8%) in the AT Policy Leaders group ranked the importance of this item as *unknown*. The corresponding intent statement was reported to be clear by 113 participants (94.2%) and unclear by 7 participants (5.8%). Table E27 in Appendix E contains the rankings of this item by respondent group.

Thirty-seven participants (30.8%) made comments on Item QI-26. Three (8.1%) comments were general comments on this indicator, 33 (89.2%) were comments on practice, one (2.7%) was a comment related to use of this indicator, and no comments were potential action items directly related suggested changes in the wording of this item.

Two of the three participants who ranked this item as *not important* or *importance unknown*—neither of whom was directly involved in the provision of assistive technology services to students—made the following comments:

- *Seems duplicative with IEP document* (Higher Education AT Faculty)
- *I personally don't know how important a written plan is.* (AT Policy Leaders)

In contrast, the development of a written implementation plan was ranked as *very important* by 100% of participants in the District & Regional AT Leaders group and by all but

one participant (4.2%) in the State & National AT Leaders group—the two groups whose day to day activities were most likely to be impacted by the presence or absence of a written plan by which to proceed. Although a well-developed IEP does provide the basic structure for assistive technology implementation, in most cases it would not be expected that an IEP would contain sufficient detail to guide the consistent implementation across service providers, educational tasks, and the multiple environments in which implementation may be expected to occur.

A sample of the comments on practice that indicate the importance of a more detailed written plan included:

- *If one is part of the planning, they have vested interest and are more likely to follow through.* (Consumers & Families)
- *When all parties involved with a student do not understand the tools, the success of the solution is compromised. When everyone is included in the planning, there is likely to be better support provided to the student.* (State & National AT Leaders)
- *As I read these, I think of the situations that haven't worked as well as they should have. A written plan could have made a difference.* (District & Regional AT Leaders)
- *This is an excellent item.* (Higher Education AT Faculty)

The majority of comments by participants across all groups included concerns about the development and use of written plans. Even among groups who considered a written implementation plan very important, comments frequently related to barriers to the development of a written plan. Three themes emerged in these comments: (a) the time and effort needed to develop an assistive technology implementation plan; (b) the belief that such a plan would only duplicate what was contained in the IEP; and, (c) procedural and systemic issues that created barriers to collaboration. Representative comments on these three themes included:

- *Collaboration requiring a separate written action plan...may not be a quality point in all situations, especially in the light of the current research and recommendations for IDEA reauthorization emphasizing the need for paper-work/meeting reduction to provide service providers more engaged time with students.* (AT Policy Leaders)

- *While the ideal practice is for team members to collaborate, this may not happen in practice. Team members are pressed and may have large caseloads. I hesitate to agree that collaboration should always occur.* (State & National AT Leaders)
- *I think it is unrealistic to expect a written action plan for every piece of AT for every student. Sometimes things can be handled less formally.* (Higher Education AT Faculty)
- *For all of this to happen, while still including the family as team member, schools must change the way they prepare for and hold meetings.* (Consumers & Families)
- *Need to make sure an “educational settings” also includes home and other places where a child may do homework, practice, etc.* (Consumers & Families)
- *This is very nice, but in our state so many assessments are done by outside AT experts who aren't really part of the team.* (Higher Education AT Faculty)
- *It is important that paraprofessionals, lunch attendants, bus drivers, etc. participate in the development of this plan.* (State & National AT Leaders)
- *I have concern that the wording of this opens the door for delays, as it does not specify how long after IEP development such an action plan should be written.* (AT Policy Leaders)

Although these comments indicate some of the current realities in practice, the barriers identified appear to be more closely related to the use of staff time than to the provision of effective, aligned services to students. These comments demonstrate that, while participants believed that having a written implementation plan is important, development of an adequate plan is complex and possibly made more complex by varying perspectives on the importance of the plan being written, when and how plans are developed, who is involved, and the level of detail that is required. The purpose of QIAT is not to provide a specific means to overcome these or other barriers to effective assistive technology service provision, but rather to help education agencies identify the barriers that exist in their services and identify ways that they might move toward lowering or removing those barriers. The comments that have been included in this section may be useful to education agencies who are seeking to improve assistive technology implementation.

In summary, analysis of these data indicates that participants in this investigation believed that it is important that there be a collaboratively developed plan to guide assistive technology implementation. However, comments indicate a wide range of perspectives, even among assistive technology leaders, about the value of the time and effort it takes to develop adequate plans and the systemic barriers that currently exist. These comments point to the need for the development of tools that can streamline the development of collaborative implementation plans. They also indicate a strong need for training on the specifics of what plans might be expected to include and how they might be most effectively developed, and for increasing awareness of the need for plans that help people work together with common purpose so that positive student outcomes are achieved. Based on this analysis, no revisions to the text of this item are recommended.

Quality Indicator and Intent Statement 27.

Quality Indicator: Assistive technology is **integrated** into the curriculum and daily activities of the student.

Intent: Assistive Technology is used when and where needed to facilitate the student's access to the curriculum, and active participation in educational activities and routines.

As shown in Table 4.12, 99.2% of the participants in this investigation reported that it is *very important* (98.3%) or *somewhat important* (0.8%) that assistive technology is integrated into the curriculum and daily activities of the student. The remaining participant (0.8%) in the Higher Education AT Faculty group ranked this item as *not important* to people with similar assistive technology interests and responsibilities. The corresponding intent statement was reported as *clear* by 113 participants (94.2%) and *unclear* by 7 participants (5.8%). Table E28 in Appendix E contains the rankings of this item by respondent group.

Twenty-four participants (20%) made comments on Item QI-27. Eight (33.3%) comments were general comments on this indicator, five (20.8%) were comments on practice, and the remaining 11 comments (45.8%) were potential action items directly related to wording of this item.

Integrating assistive technology into the curriculum and daily activities of the student was one of the three items most consistently ranked as *very important* by participants in this study. General comments on this item underscore the importance, as illustrated below.

- *This is what it is all about!* (Consumers & Families)
- *AT is a means to an end and not an end unto itself.* (AT Policy Leaders)
- *Yes! Assistive technology should be the tool—not the task.* (Consumers & Families)
- *The concept of integrating technology into the curriculum is one whose importance extends well beyond special education into regular education!* (District & Regional AT Leaders)
- *The importance of access to the curriculum is paramount. .all too often this component is not addressed.* (Consumers & Families)

Comments on practice indicate that, in some instances, the lack of a clear understanding of the purpose of assistive technology in education or a narrow interpretation of “curriculum and daily activities” may create barriers to implementation. A sample of comments included:

- *Some tools do not integrate easily in to daily activities—some latitude may be needed.* (State & National AT Leaders)
- *For multiply handicapped students this is hard at times for teachers to understand.* (District & Regional AT Leaders)
- *Integration appears to be difficult. Devices are often used for specific activities instead of routine activity.* (Consumers & Families)

Suggestions for additions or changes to the wording of this item focused on four recommendations: (a) adding references to educational achievement; (b) broadening the implications of educational environments and activities; and (c) including the use of assistive technology on large-scale assessments. Representative comments included:

- *Access to and mastery of the curriculum; access is not sufficient; mastery is the goal* (Higher Education AT Faculty)

- *Add “across all environments”. .The wording used now does not preclude home /community usage, but it may mislead so I would emphasize broader environments in which educational activities may take place. (Consumers & Families)*
- *May want to include a statement that AT should be used when participating in local, district, and state mandated assessments if students use AT when accessing the general curriculum. (State & National AT Leaders)*

In summary, analysis of these data indicates that assistive technology is integrated into the curriculum and daily activities of the student is considered important to participants across all groups. Even though this item was rated among the most important of all items in this study, comments indicate that the item could be clearer with some minor rewording to provide a somewhat more comprehensive picture of what the integration of assistive technology into the curriculum and daily activities might include. The text of recommended revisions is included in Table 4.13 located at the end of this chapter.

Quality Indicator and Intent Statement 28.

Quality Indicator: Team members in all of the child's environments **share responsibility** for implementation of the plan.

Intent: Persons working with the student in each environment know what to do to support the student using assistive technology.

As shown in Table 4.12, 100% of the participants reported that it is *very important* (83.3%) or *somewhat important* (11.7%) for team members in all of the child's environments share responsibility for implementation of the plan. The corresponding intent statement was reported as *clear* by 106 participants (88.3%) and *unclear* by 14 participants (11.7%). Table E29 in Appendix E contains the rankings of this item by respondent group.

Thirty-four participants (28.3%) made comments on Item QI-28. Five (14.7%) comments were general comments on this indicator, 18 (52.9%) were comments on practice, and the remaining 11 (32.4%) were potential action items directly related to wording of this item.

Participants in the Consumers and Families group were particularly united in their expression of the importance of this item. Over 90% of participants in that group rated the quality indicator as *very important* and 100% rated the intent statement as *clear*. The majority

of the comments that reflect the importance of this item were made by participants in the Consumers and Families. Representative comments from that group include:

- *This is why a detailed fully inclusive plan needs to be developed that involves the school, the family, friends and community supports working together rather than as separate pieces to the puzzle.*
- *This is what will make it (the assistive technology) effective!*
- *This would be the key to implementation and has been a huge barrier to effective implementation with my son. As a result, he hasn't used the AT optimally and so sees limited utility in it, although he wouldn't think of going without his glasses.*

Comments on practice focused on three main themes: (a) the importance of consistent expectations and shared responsibility to assistive technology use; (b) the challenges of shared responsibility; and (c) differing perspectives about who should be involved in implementation.

A sample of comments on the importance of shared responsibility included:

- *(The responsibility for) AT can't belong to the student and someone who comes to the building only occasionally—and usually after someone mentions that the AT hasn't been working for “weeks” (District & Regional AT Leaders)*
- *Consistency in demand of use makes desired function much more likely and less confusing for the student. (Consumers & Families)*

A sample of comments on the challenges of shared responsibilities included:

- *Collaboration can seldom be mandated. (Higher Education AT Faculty)*
- *Who does the family go to when the plan is not being implemented? (Consumers & Families)*
- *Although this indicator is important, I suspect it is problematic for folks to follow through on. It clearly gives a place for practitioners to plan for improvement. (State & National AT Leaders)*
- *Knowing what to do and sharing RESPONSIBILITY for doing it are two different things. Lots of folks know what to do, but just don't take the time to do it because they aren't held accountable for it. (AT Policy Leaders)*

Finally, comments on practice that illustrated differing perspectives on shared responsibility for implementation of assistive technology are as follows:

- *Sharing responsibility can lead to problems like miscommunication and reprogramming of devices. Often a lead person needs to be identified to be responsible for overseeing. An analogy is in the medical field where a physiatrist oversees all the needs of patients.* (Higher Education AT Faculty)
- *Often it is the AT specialist who is expected to be responsible or the special education teacher. It is important to have the general education teacher be an important responsible party.* (District & Regional AT Leaders)
- *In the real world it is not likely that an entire team will share day to day information efficiently. Generally it is more effective to have one responsible party that keeps a team informed.* (State & National AT Leaders).

The main themes of comments that included suggestions for additions or changes to the wording of this item were clarification of the term “the team” and strengthening of the phrase “knows what to do.” Representative comments included:

- *The indicator says “team members”. There will be many individuals not on the “team” who must play a role in supporting AT use. Perhaps you need to define “team member”—when I see “team member” I think of formal “IEP team members.”* (Higher Education AT Faculty)
- *“What to do” is vague—does this refer to knowledge/skill related to the particular type of AT, knowledge of role, participation as a collaborative team member, etc.?* (Consumers & Families)
- *Change “to do” to “what their roles and responsibilities are”—be more inclusive about “environments”—list examples, bus, cafeteria, etc.* (Consumers & Families)
- *I suggest adding to the intent statement wording that pushes the “knowing” part into an “action” step, such as, “. . .and are actively involved in doing it, when appropriate.”* (Higher Education AT Faculty)
- *May need to mention the scope of the team membership. .e.g. includes gen ed teacher, parents, etc. Indicator uses term “team members.” Intent statement uses word “persons”.* (Higher Education AT Faculty)

In summary, analysis of these data indicates that sharing responsibility for implementation of the plan across environments is considered to be important by all participants across all groups. Comments on this item indicate that some changes in the wording of this item would support a deeper understanding of the concepts of “shared responsibility” and who should be involved. The text of recommended revisions is included in Table 4.13 located at the end of this chapter.

Quality Indicator and Intent Statement 29.

Quality Indicator: The student uses **multiple strategies to accomplish tasks** and the use of assistive technology may be included in those strategies.

Intent: Assistive Technology tools are used when needed to remove barriers to participation and/or performance. Alternate strategies may include use of the student's natural abilities, other supports, or modifications to the curriculum, task or environment. At times these alternate strategies may be more efficient than the use of assistive technology.

As shown in Table 4.12, 92.5% of the participants reported that it is *very important* (83.3%) or *somewhat important* (9.2%) that students use multiple strategies to accomplish tasks and the use of assistive technology may be included in those strategies. Four participants (3.3%)—two in the AT Policy Leaders group and two in the Higher Education AT Faculty group—ranked this item as *not important* to people with assistive technology interests and responsibilities similar to their own. Five participants (4.3%) across all groups, except the District and Regional AT Leaders group, ranked the importance of this item as *unknown*. The corresponding intent statement was reported as *clear* by 101 participants (84.2%) and *unclear* by 19 participants (15.8%). Table E30 in Appendix E contains the rankings of this item by respondent group.

Thirty-six participants (30%) made comments on Item QI-29. Seventeen (47.2%) comments were general comments on this indicator, six (16.7%) were comments on practice, two (5.6%) comments were on future developments for use of this item, and the remaining 11 (30.6%) were potential action items directly related to wording of this item.

This item had one of the two highest frequencies of *not important* or *important unknown* rankings and one of the highest numbers of comments directly related to the content of the item. A review of the comments indicated great polarization of the perceptions about the

importance of the item as it was worded. Two themes emerged in the comments on the general content of this item: (a) the importance of students having multiple strategies to accomplish tasks, and (b) the questionable importance of including a pedagogical statement as an indicator of quality assistive technology services.

A sample of comments that reflect the importance of students having multiple strategies to accomplish tasks included:

- *Yes, depending on the time of day, the level of fatigue, the type of environment and lots of other factors a variety of low tech, high tech or no tech options need to be available. Many times I see an AT device replacing another item or strategy rather than being an additional item that may work better some of the time. It should not be a either or but rather what works best for a particular situation* (Consumers & Families)
- *Excellent indicator. Students need to use the best strategy for a given task, not just use the one device recommended by the IEP team. There should be a system in place so the student can make an appropriate decision at a particular time.* (State & National AT Leaders)
- *This is important as it gives flexibility—not everything needs to be a project—some simple no tech interventions are important as they can be spontaneously used.* (Consumers & Families)

Other comments on the content of this item indicated the belief that there was minimal need for an item more related to pedagogy than to assistive technology per se. A sample of comments on this theme included:

- *This seems to be a “pedagogical” theory as opposed to an AT consideration.* (AT Policy Leaders)
- *I question whether this indicator adds value or potential beneficial impact to include it. The basic principles in this indicator and intent statement seem to be covered in previous indicators.* (AT Policy Leaders)
- *I'm not sure why this item is here.* (AT Policy Leaders, Higher Education AT Faculty)

- *I am not sure how this links to the Quality Indicators—it would be best practice for IEP development; but I don't see relevance to AT—if alternative strategies work why would you use AT?* (Higher Education AT Faculty)
- *This seems to be a given. Why is it here?* (Consumers & Families)

Two points made in these comments seem worthy of further discussion. First, the use of assistive technology for educational purposes *is* a pedagogical issue. In other words, the implementation of assistive technology is very closely tied to educational methodology and directly related to education aims and the achievement of those aims. Indeed, the very basis upon which a determination of whether or not assistive technology devices and services are needed by a student is the extent to which those devices and services are required for the student to participate in and benefit from a free, appropriate public education. Therefore, the close relationship between pedagogy and quality implementation of assistive technology services would seem important. Second, although it would *seem to be a given*, that a student who requires assistive technology some or all of the time for some tasks in some circumstances may *not* need it at other times for other tasks in other circumstances, experience has led the members of the QIAT Consortium to believe that this concept may not be readily understood without explanation

Additional insight into why the QIAT Consortium considered an item related to the student's use of multiple ways to accomplish a task important enough to be included as a quality indicator can be gained by these comments on practice.

- *Teams often think they are always required to use the technology and it is possible to simply overload a student (and the team) when a no-tech solution is the natural way to go in some situations.* (AT Policy Leaders)
- *There are times when we all need ways to accomplish tasks independent from technology. If we don't teach students to maximize their independence without technology, then we may set them up for failure. .There's a balance between a child's natural abilities and their need for technology.* (State & National AT Leaders)

Many of the comments on this item indicate a need for the development of tools and training that increase understanding about the purpose of assistive technology implementation

in educational settings and the importance of using multiple strategies for the accomplishment of tasks. Comments that directly addressed tools and training related to this item included requests for the development of examples of strategies, accommodations, and modifications and how they would be used in conjunction with assistive technology.

A sample of comments with suggested changes to the wording of this item included:

- *This the only indicator in which the child is talked about in this way.* (Higher Education AT Faculty)
- *Does this say that the student needs to learn how to determine which strategies are most appropriate to a particular circumstance?* (AT Policy Leaders)
- *I think you have to be careful with the use of 'efficient'. This could be perceived as more efficient for school personnel rather than for the student.* (Consumers & Families)
- *This one needs more work to get at what will support student's best performance. "efficient" is a scary word in the context of tight budgets.* (AT Policy Leaders)
- *I would argue that you can have quality AT without a student using multiple strategies. My point here is that the QI should read more like: "When and where appropriate, the student is encouraged to consider and/or use multiple strategies."* (Higher Education AT Faculty)
- *The wording could reflect that AT is often used concurrently with other strategies of intervention (not as a subordinate part, but jointly or in parallel.) And it is not either AT or other interventions as the intent statement seems to suggest.* (Higher Education AT Faculty)
- *The Intent statement implies, inadvertently I suspect, that "efficiency" is the only criterion by which alternate strategies should be judged. It would be instructive, and more accurate, to mention here the other most frequently relevant criteria.* (Higher Education AT Faculty)

In summary, analysis of these data indicates that the student's use of multiple strategies for the accomplishment of tasks is considered to be important by the majority of participants across all groups. Comments with suggested changes in this item ranged from minor wording changes to a call for the removal of this item from QIAT. As discussed previously,

the inclusion of a quality indicator on the use of multiple strategies for task accomplishment is considered important to the QIAT Consortium and also to the majority of participants in this study; therefore, the item will remain. However, the diversity of the comments on this item and the differing ways in which it was interpreted indicate that changes in wording are called so that its intent and purpose are more clearly communicated. The text of recommended revisions is included in Table 4.13 located at the end of this chapter.

Quality Indicator and Intent Statement 30.

Quality Indicator: **Training** for student, family and staff is an integral part of implementation.

Intent: Determination of the training needs of the student, staff and family based on how the assistive technology will be used in each unique environment. Training and technical assistance are planned and implemented as ongoing processes based on current and changing needs.

As shown in Table 4.12, 100% of the participants considered it *very important* (98.3%) or *somewhat important* (1.7%) that training for student, family and staff is an integral part of implementation. The corresponding intent statement was reported as *clear* by 114 participants (95%) and *unclear* by 6 participants (5.0%). Table E31 in Appendix E contains the rankings of this item by respondent group.

Thirty participants (25%) made comments on Item QI-30. Eleven (36.7%) comments were general comments on this indicator, 10 (33.3%) were comments on practice, six (20%) comments were related to future use of this item, and the remaining three (10%) comments were action items that suggested revisions to the wording in this item.

In contrast to the previous item, training for student, family and staff to be an integral part of implementation was among the three indicators most consistently ranked as *very important* by participants in this investigation. The comments on this item reinforced the rankings, as indicated by this sample of comments.

- *Is there a “Critically Important” ???? (Higher Education AT Faculty)*
- *This must be a very high priority! (Consumers & Families)*
- *If students, parents, and staff aren't trained–it won't work!!! (District & Regional AT Leaders)*

- *I like the emphasis on technical assistance and not just on the one shot training fix it. (State & National AT Leaders)*
- *Totally in agreement! Thank you for addressing this issue. (AT Policy Leaders)*

Although the importance of training for students, parents, and staff was determined to be very important, some comments on practice indicated that there are attitudinal and systemic challenges to implementation. A sample of comments included:

- *This is not as easily implemented as it seems. Local folks might not have the skills, time or expertise to support it. Budgeting for consultants typically happens on a reactive basis. (State & National AT Leaders)*
- *Schools that do provide training seem to think that if it is done over the summer then there is no need for any other training until the following summer. They rarely consider staff, setting or program changes. (Consumers & Families)*
- *Add “consistent with applicable state or federal regulations” to the end of the intent statement. Reasonable time is the wording of the federal rule, but many states have more stringent time requirements. (AT Policy Leaders)*
- *It’s kind of tough to plan the need for technical assistance. (District & Regional AT Leaders)*

Comments that include suggestions for the development of materials and information for those who wish to use this item focused on guidelines for quality training, content of training, people who should be included in training. Comments included:

- *Provide resources/suggestions for training. (State & National AT Leaders)*
- *What passes for “training” in many cases today is very weak. .it does not impart new skills or even change behaviors. What are the indicators of GOOD training? (Higher Education AT Faculty)*
- *I'd like to see a plug for training family and professionals together rather than separately when possible? (AT Policy Leaders)*
- *I have also seen training made available to peers/friends as appropriate—and probably the most critical. (State & National AT Leaders)*
- *People need training in collaborative decision-making, problem solving, development of action plans, and IEPs. (Higher Education AT Faculty)*

In summary, analysis of these data indicates that participants across all groups strongly agree that training for student, family and staff is an integral part of assistive technology implementation. Comments supported this perception and many included suggestions for the development of materials that support those who provide training to students, parents, and staff, including quality indicators for training and technical assistance. Since data collection for this investigation was completed, the QIAT Consortium has developed Quality Indicators for Assistive Technology Professional Development and Training. These quality indicators are included in Appendix F and in the QIAT document that is available online at <http://www.qiat.org>. Based on these data, no substantive changes or additions to this item are recommended, but typographical errors in the original item have been corrected and are included in Table 4.13 located at the end of this chapter.

Quality Indicator and Intent Statement 31.

Quality Indicator: Assistive technology implementation is initially based on assessment **data** and is adjusted based on performance data.

Intent: Formal and informal assessment data guide initial decision-making and planning for Assistive Technology implementation. As the plan is carried out, student performance is monitored and implementation is adjusted in a timely manner to support student progress.

As shown in Table 4.12, 97.5% of the participants reported that it is very important (89.2%) or somewhat important (8.3%) for assistive technology implementation to be initially based on assessment data and adjusted based on performance data. One participant (0.8%) in the Consumers & Families group ranked this item as *not important* to people with similar assistive technology interests and responsibilities. This participant objected to the word “data” and consistently ranked any item in this investigation that included “data” as *unimportant*. Two participants (1.7%) - one in the Higher Education AT Faculty group and one in the AT Policy Leaders group ranked the importance of this item as *unknown*. The corresponding intent statement was reported as *clear* by 111 participants (92.5%) and *unclear* by nine participants (7.5%). Table E32 in Appendix E contains the rankings of this item by respondent group.

Twenty-one participants (17.5%) made comments on Item QI-31. Nine (42.9%) comments were general comments on this indicator, four (19%) were comments on practice, three

(14.3%) were comments related to use of this indicator, and the remaining five (23.8%) comments were potential action items directly related suggested changes in the wording of this item.

General comments on this item underscore its importance to most participants. A sample of those comments includes:

- *We must be able to know if what we thought would work did actually work, and to also know why it didn't work so we can adjust accordingly. Sometimes we thought the device did not work when in fact the problem was that no one knew how to make it work correctly!* (Consumers & Families)
- *I really like the verbiage. We do this, but to have to pound out the whys.* (District & Regional AT Leaders)
- *A necessary piece and often not completed* (District & Regional AT Leaders)

Comments on practice related to this item included the following observations, concerns and cautions:

- *Adjustment in timely manner? Usually means yearly IEP.* (Consumers & Families)
- *This is why we need to watch how much is in the IEP. Document too much in there and you'll be having a meeting to change it every time you make a minor adjustment to the plan. REFERENCE the plan, and the fact that the plan will change with the student, and you aren't continually re-writing IEP's.* (District & Regional AT Leaders)
- *Yes, IF assessment data includes measures of performance with and without the device.* (Higher Education AT Faculty)

A participant in the Higher Education AT Faculty group made the following suggestion for additions to this indicator.

- *Many of the words in the Indicator and Intent statements easily can be interpreted in diverse ways by different readers. Some of those ways would permit "non-quality" implementation to meet this quality indicator. How should student performance be monitored? What is good data recording? What is good "adjust-*

ment” of the implementation? What are the indicators that will reveal when this is done in a quality way?

It is not the intent of QIAT to provide answers to these questions; however, it is important that these questions be raised and answers sought in national, state, and local education agencies. Further, it would be unwieldy to include sufficient specific information about any of these questions within this quality indicator or intent statement. However this comment and others similar to it suggest that if this item is to be used well, there is a strong need for the development of supports and training for people charged with using assessment data and recommendations to guide implementation of assistive technology services.

In summary, analysis of these data indicates that participants across all groups believed that it is highly important for assistive technology implementation to be initially based on assessment data and adjusted based on performance data. Comments indicate some need for resources be identified or developed that provide support for collecting and analyzing performance data and determining next steps based on data. Based on this analysis, no changes are recommended in the wording of this item.

Quality Indicator and Intent Statement 32.

Quality Indicator: Assistive technology implementation includes **management and maintenance of equipment** and materials.

Intent: For technology to be useful it is important that equipment management responsibilities are clearly defined and assigned. Though specifics may differ based on the technology, some general areas may include organization of equipment and materials, responsibility for acquisition, repair and replacement, and assurance that equipment is operational.

As shown in Table 4.12, 100% of the participants reported that it is very important (94.2%) or somewhat important (5.8%) for assistive technology implementation to include management and maintenance of equipment and materials. The corresponding intent statement was reported as *clear* by 114 participants (95%) and *unclear* by 6 participants (5%). Table E33 in Appendix E contains the rankings of this item by respondent group.

Twenty-three participants (19.2%) made comments on Item QI-32. Five (21.7%) comments were general comments on this indicator, 12 (52.2%) were comments on practice,

and the remaining six (26.1%) were potential action items directly related to wording of this item.

General comments on the importance of including management and maintenance of equipment and materials in the assistive technology implementation included:

- *This is considered an aspect of AT services under IDEA. Well stated.* (AT Policy Leaders)
- *This is a good addition since it usually goes by the wayside* (District & Regional AT Leaders)
- *Technology WILL break, wear out, or become outdated so we must keep it up—and in a “timely manner” as well.* (Consumers & Families)
- *This is a good item, with helpful elaborations in the Intent statement. This item is heavily dependent on administrative support—as was mentioned in the Administration section.* (Higher Education AT Faculty)

Comments on practice included concerns and challenges related to the management and maintenance and of equipment and materials included:

- *Management and maintenance need to be done in a “timely fashion” or some other sort of reference to time. I’ve seen a child wait 5 months for the return of his AT device because of maintenance issues.* (AT Policy Leaders)
- *WHO will be responsible for management and maintenance of equipment? This should be a team effort, shared by parents and educators, but this needs to be clearly stated.* (Consumers & Families)
- *School sites need to take ownership of the care and maintenance of equipment, know how to do some basic trouble shooting, and report repair needs beyond the scope of school-site expertise on a timely basis.* (District & Regional AT Leaders)
- *Action plans with what, when and who needs to developed with a back-up plan for staff changes, etc.* (Consumers & Families)
- *This information would need to be included in the agencies overall plan for AT, policies and procedures.* (State & National AT Leaders)

Each of the comments with suggestions for additions or changes to the wording of this item was a call for specific details related to the experiences and interests of the individual

participant. Although specific issues related to management and maintenance of equipment and materials are important, these are the purview of individual agencies and planning teams and should be included in the guiding documents developed by those entities.

In summary, analysis of these data indicates that participants across all groups believed that it is very important for assistive technology implementation to include management and maintenance of equipment and materials. Based on this analysis, a minor change in the intent statement of this is recommended and included in Table 4.13 at the end of this chapter.

Quality Indicators for Evaluation of Effectiveness of Assistive Technology Services

This area addresses the evaluation of the effectiveness of the assistive technology devices and services provided to a student. It includes quality indicators for data collection and documentation that support monitoring of changes in student achievement resulting from the implementation. Data are reviewed in order to identify if, when, or where modifications and revisions to the implementation are needed.

As shown in Table 4.14, all but one of the Quality Indicators for Evaluation of Effectiveness of Assistive Technology Services was ranked as either *very important* or *somewhat important* by greater than 98% of the participants in this investigation. Quality Indicator 38 received one of the three lowest rankings of importance in this study; however, this item was still ranked as *somewhat important* or *very important* by greater than 92% of participants. Each of the intent statements in this section was ranked as *clear* by greater than 82% of the participants. Though the data indicate some range in the frequency that each quality indicator was ranked as *very important*, and the frequency that each intent statement was ranked as *clear*, a large majority of participants in each of the participant groups viewed all of the quality indicators and intent statements in this section as important to the evaluation of effectiveness of assistive technology services. Tables E34 through E40 in Appendix E contain the rankings of these items by group.

Eighteen participants (15 %) made comments on the area of Evaluation of Effectiveness of Assistive Technology Services. Four (22.2%) comments were related to practice, eight (44.4%) were comments on the content of this indicator, and six (33.3%) were potential action items that directly suggested modification or additions to this area.

Comments on the content of this area reflect the importance of the quality indicators contained in this area to evaluating the effectiveness of assistive technology services. Following is a sample of the comments, followed by the participant's group.

- *Without evaluation of effectiveness, everything we've done up to this point just "is". Evaluation is guidance, justification, support, freedom. (District & Regional AT Leaders)*
- *This area reflects possibly the biggest area for needed change. For too long we have made AT decisions based on gut—with particular concerns coming from No Child Left Behind and similar calls for accountability, we need to show how decisions are made, and that our work is indeed effective and creates meaningful change. (State & National AT Leaders)*
- *Having measurable objectives and actually keeping good data on them is a critical element to assess training effectiveness. It is too often overlooked. (State & National AT Leaders)*
- *This is excellent. Having the training, time and resources to make it happen is critical. (AT Policy Leaders)*

Comments related to practice included concerns for the practical reality of evaluating the effectiveness of assistive technology, much like those in the final comment included in the previous paragraph. Representative comments included:

- *Teams rarely get time to review and adjust plans unless something isn't working. (State & National AT Leaders)*
- *As you might guess, "evaluation" takes on a whole new meaning when dealing with a very rural, one room school environment. (State & National AT Leaders)*
- *Data collection is obviously important, but not to the exclusion that it is the sole focus. (District & Regional AT Leaders)*
- *We need to be careful about creating extra paperwork. Many teachers are swamped in paper now. Documentation is important, but only if we can provide for student needs first. (Consumers & Families)*

These comments suggest that collecting data on effectiveness and documenting changes is not viewed always as a critical part of meeting student needs. However, it is the

view of the QIAT Consortium that ongoing formative evaluation of the effectiveness of assistive technology devices and services is a critical part of providing for student needs. The high rankings that the majority of participants across groups give to each item in this area supports the conclusion that that they agree.

A small number of comments made by participants in the Higher Education AT Faculty group included concerns about the importance of this area and its focus. Comments included:

- *These really apply to evaluations of IEP items, whether AT devices are used or not. The only thing I feel is critical with respect to AT is to state that evaluations must occur to determine whether the device is producing the desired effect. If not, then new strategies, including potential changes in the device, must be considered. Also, I am sensing UK's behavioral orientation in the wording of these indicators.* (Higher Education AT Faculty)
- *Evaluation of effectiveness must attempt to isolate the intervention of interest. Else we just evaluate the effectiveness of some unknown entity as it is generically performed with all other interventions. These indicators mention nothing to this effect. I'd go as far as to say that if this is true this entire set of indicators is not very valuable except it helps dup us into thinking we are dutifully measuring the effects of AT. Controversial I am! But this is one of the outcomes constructs we have discovered in our research. These indicators do reflect the state-of-the-art thinking of a few years ago. Consider the core statement, "It includes data collection and documentation to monitor changes in student performance resulting from the implementation." The key words are the last few, "resulting from the implementation." So how do we do that!?* (Higher Education AT Faculty)

These comments raise reasonable concerns; however, they appear to focus more on summative evaluation by which the final merit of an intervention is measured rather than formative evaluation that seeks to collect and analyze data to determine what is working, what is not, and how to improve the intervention in order to improve results. It is true that the indicators in this area support QIAT's belief that the strategies that apply to evaluating educational results for students can also be applied to evaluating the effectiveness of assistive technology

devices and services. Further, it is true that QIAT focuses on achievement of IEP goals and progress in the curriculum as the major indicator of effective provision of assistive technology devices and services in schools. The results, in the case of educationally-related assistive technology devices and services, must be based on the educational achievement of the students receiving those services.

The educational achievement of each student is not only the legal responsibility of schools, but also the legal justification for the provision of assistive technology devices and services to students with disabilities. If a student who has not had a history of making adequate educational progress is provided with assistive technology and data indicate increases in the student's achievement through the use of the technology, there may be little need to attempt to isolate the *extent* to which assistive technology was *responsible* for the increases. If, however, the data indicate that the student's achievement does *not* increase even after the assistive technology is provided, it is critical to know *why* so that appropriate changes can be made. The indicators contained in this area are meant to support the collection and analysis of data in a way that provides implementers and IEP team members with the information they need to determine whether the assistive technology is *contributing* to the realization of the desired effect and, if it is not, what factors are limiting that realization so that changes can be made.

Comments related to changes in this area include a general plea for clarification and the suggestion that this area may be clearer if the items were re-ordered to move more fluidly from the general to the specific.

- *I hate to show my ignorance but in this section I needed to read the Intent in order to understand the Quality Indicator. (Consumers & Families)*
- *Some consideration might be given to the order presentation of these indicators. For example, #5 might be an appropriate one to start off with since it applies to almost any situation - some of the others are more specific to certain types of AT (i.e. use of an AAC device and determination of effectiveness would require more data collection than use of an talking book player) One arrangement might be 5, 6, 3, 2, 4, 1. (Higher Education AT Faculty)*

In summary, the quantitative and qualitative data gathered in the overview of this area provide the means to draw several conclusions. First, the participants in this study found each of the Quality Indicators for Evaluation of Effectiveness of Assistive Technology Services to be important to the provision of quality assistive technology services and found each of the intent statements to be generally clear. Second, though there is a high rate of agreement on importance, a greater number of participants found some of the items in this area to be of lesser importance and generally less clear than other areas in QIAT. Ranking and comments about individual items will be presented and discussed later in this section. Third, these data indicate the need for some rewording and reordering to increase clarity and, when possible, reduce what might be considered by some groups to be educational or behavioral jargon not readily understood by people in all groups for whom QIAT is intended. Specific recommendations for revisions are included in Table 4.15 and suggested reordering of the items in this area are included in Table 4.16, both located at the end of this chapter. Suggestions for the development of supporting tools that can be used to assist in the evaluation of effectiveness of assistive technology services appear in the following chapter.

The remainder of this section presents and discusses the results related to importance and clarity of each quality indicator and intent statement pair contained in the area of Evaluation of Effectiveness of Assistive Technology Services. It should be noted that, in this section, one participant from the Consumers and Families group consistently ranks any item that contains the word “data” as *importance unknown* or *not important*. Those rankings show up consistently in this section because of its emphasis on the collection and analysis of evidence that assistive technology is or is not producing the anticipated result. This participant, based comments on all items containing the word “data”, appears to have a notion of data that is narrower than the QIAT Consortium’s understanding of data as evidence gained by a various means from multiple sources that enable communication, interpretation, and processing. Although this participant’s rankings are included in the results for each item in this section, his or her rankings and accompanying comments will not be discussed further.

Quality Indicator and Intent Statement 33.

Quality Indicator: Team members share **clearly defined responsibilities** to ensure that data are collected, evaluated, and interpreted by capable and credible team members.

Intent: Each team member is accountable for ensuring that the data collection process determined by the team is implemented. Individual roles in the collection and review of the data are assigned by the team. Data collection, evaluation, and interpretation are lead by persons with relevant training and knowledge. It can be appropriate for different individual team members to conduct these tasks.

As shown in Table 4.14, 99.2% of the participants in this investigation reported that it was *very important* (83.3%) or *somewhat important* (15%) that clearly defined responsibilities are shared in order to ensure that data are collected, evaluated, and interpreted by capable and credible team members. One participant (0.8%) in the State and National AT Leaders group ranked this item as *not important* to people with similar assistive technology interests and responsibilities. One participant (0.8%) in the Consumers and Families group ranked the importance of this item as *unknown*. The corresponding intent statement was reported to be clear by 111 participants (92.5%) and unclear by 7 participants (7.5%). Table E34 in Appendix E contains the rankings of this item by respondent group.

Twenty-eight participants (23.3%) made comments on Item QI-33. Seven (8.1%) comments were general comments on this indicator, 15 (89.2%) were comments on practice, and six comments were potential action items directly related to suggested changes in the wording of this item. The participant from the State and National AT Leaders who ranked this item as *not important* did not elect to comment on the item.

A sample of the comments on this item that confirm the importance of shared responsibility for ensuring that data are collected, evaluated, and interpreted by capable and credible team members included:

- *Communication of roles is paramount to ensure accurate—or any—data is collected.* (AT Policy Leaders)
- *This is a great indicator.* (Higher Education AT Faculty)
- *It is important to look at the data in both a positive way and a negative way—why it isn't working!* (District & Regional AT Leaders)

Comments on practice that underscored the importance of having multiple perspectives involved in data collection and analysis were most frequent in the Consumers and Families group. A sample of comments from that group included:

- *The STUDENT needs to be involved in this! He/she knows best! I always teach that a child needs to be running his own meeting, or at least be very involved in it!*
- *Clarify again that team includes student and/or parent as well as school-based staff.*
- *Various perspectives are critical in evaluation. For example fatigue may not be a factor at school but may have a huge impact in the evening and impact the effectiveness of a particular device.*

Even among groups who considered it important, several comments related to perceived barriers to sharing responsibility for data collection and analysis in practice. A sample of comments included:

- *There is rarely enough time to actually collect data. (State & National AT Leaders)*
- *Easy to say, difficult to implement especially when teaming is impossible. (District & Regional AT Leaders)*
- *Administrative support is needed to have this happen. (State & National AT Leaders)*
- *I have RARELY seen data collected on the implementation of AT. Making data collection manageable is the key. (Higher Education AT Faculty)*

Comments directly related to the wording of this item primarily focused on pointing out a typographical error and indicated that the word “lead” should be replaced with “led” in the quality indicator. One comment, however, from a participant in the State & National AT Leaders group, included an important observation about wording, stating:

- *“In various statements, you use the terms “assessment” and “evaluation.” Practitioners may not clearly differentiate between these terms.”*

It is accurate that the terms assessment and evaluation are used somewhat interchangeably in the QIAT document because these terms are applied differently in many states around the country. Rather than trying to force a single understanding of each term, QIAT has elected to make an effort to provide a context each time the term is used so that the intent is not misunderstood. It is quite possible that, at some future time, federal clarification of this term will enable QIAT to be more specific and consistent in the use of each of these terms.

However, in order to promote the wide usability of QIAT across states—and internationally—it was concluded that no differentiation between these two terms should be made in the QIAT document at this time.

In summary, analysis of these data indicates that participants in this investigation believed that is important that team members share clearly defined responsibilities to ensure that data are collected, evaluated, and interpreted by capable and credible team members. However, comments indicate that there are some concerns about time and effort it takes to develop collect and analyze data and who should be included as credible members of the team. Such comments point to the need for the development of capacity-building training and tools that can support increased in the knowledge and skills of team members related to shared data collection and analysis. Based on the analysis of these data, no revisions to the text of this item are recommended.

Quality Indicator and Intent Statement 34.

Quality Indicator: Data are collected on specific student behaviors that have been identified by the team and are **related to one or more goal**.

Intent: In order to evaluate the success of the assistive technology use, data is collected on various aspects student performance. The behavior targeted for data collection is related to one or more IEP goal(s) (e.g. ability to accomplish the task, use of the technology, changes in student behavior).

As shown in Table 4.14, 98.3% of the participants in this investigation reported that it is *very important* (85.0%) or *somewhat important* (13.3%) that data are collected on specific student behaviors that have been identified by the team and are related to one or more goal. In addition to the participant in the Consumers and Families group, one participant in the AT Policy Leaders group ranked this item as *not important* to people with similar assistive technology interests and responsibilities. The corresponding intent statement was reported as *clear* by 107 participants (89.2%) and *unclear* by 13 participants (10.8%). Table 35 in Appendix E contains the rankings of this item by respondent group.

Twenty-six participants (21.7%) made comments on Item QI-34. Five (19.2%) comments were most closely related to practice, two (7.7%) comments related to use of this item, and the remaining 19 comments (73.1%) were potential action items directly related to wording of this item.

As would be anticipated by the relatively high number of *unclear* rankings for this item, comments included several suggestions for changes to the wording of this item to increase clarity. Comments that included suggested changes focused on three recommendations: (a) changes in the use of the word “behaviors”; (b) establishing a stronger relationship between data collection and IEP goals, and (c) concerns about limiting data collection to IEP goals.

Concerns and confusion about the word “behaviors” were reflected in comments across groups. A sample of comments on that theme included:

- *I'd stay away from the word “behavior” and perhaps use the word “activities”– behavior is such a loaded and negative word for many educators. (Consumers & Families)*
- *I would use student performance rather than student behavior. I would use “the performances targeted. .and keep “behavior” as a subset of performance. (State & National AT Leaders)*
- *Is the data collected on the behavior or the uses of the AT or the AT influence on the behavior? (District & Regional AT Leaders)*
- *How is academic achievement distinguished from behavior–if you see changes in academic outcomes and no changes in behavior, how is that “data” reflected by this indicator? (Consumers & Families)*

Several participants commented that the connection to IEP goals needed to be stronger as indicated by these comments:

- *The intent of this is clear, but should this be stated more directly that data should be based on IEP goals and objectives? (District & Regional AT Leaders)*
- *Place “IEP” before “goal(s)” in the indicator. (State & National AT Leaders)*
- *The phrase “related to one or more IEP goal(s)” appears in both the Indicator and the Intent statements. I believe it is too vague to be helpful in determining quality. I recommend re-phrasing or elaborating this important point so its meaning is clear. (Higher Education AT Faculty)*

Interestingly, several participants expressed the opposite view. The participant in the AT Policy Leaders group who ranked this item as *not important* commented that there was no

need to limit collection of data to IEP goals. Other participants voiced similar opinions with comments that included:

- *Sometimes unexpected results occur. If we only look for data which supports goals, we may miss an “unexpected gift.” It is important to be open to other successes to which the technology could lead.* (State & National AT Leaders)
- *Data not directly related to IEP goals may be just as important to collect.* (AT Policy Leaders)
- *Data collection is important in all aspects of monitoring progress–this description just isn't quite clear.* (State & National AT Leaders)
- *Student performance is not the only type of relevant outcomes data. Of course it is important, but so are cost, efficiency, self-perception and satisfaction, etc.* (Higher Education AT Faculty)

The Individuals with Disabilities Education Act makes it clear that the provision of assistive technology devices and services must be provided, if they are required as a part of the student’s special education, related services, or supplementary aids and services required in order to participate in and benefit from a free, appropriate public education. Students with disabilities who qualify for services under IDEA typically have one or more goals that are targeted for change in order to increase the student’s educational achievement. Although it is important to collect data on whether or not assistive technology leads to unexpected changes and to changes not related to IEP goals, it is critical that evaluation data reflect whether or not assistive technology devices and services contributed to increases in the student’s educational achievement. Although factors such as satisfaction that contribute to the successful or unsuccessful use of assistive technology should be considered and data collected in a way that reflects their influence, unless the impact on student achievement is measured, it is not possible to determine the effectiveness or ineffectiveness of assistive technology for the purposes for which it is intended in schools—supporting the student’s educational achievement.

Comments also included a call for the identification or development of training and supports that build the capacity of individuals, families, and service providers to the use this indicator. Representative comments included:

- *Intent is clear however few tools exist to facilitate this.* (State & National AT Leaders)
- *There needs to be more clarification about what can be done or what action can be taken if changes do not take place.* (Consumers & Families)

In summary, analysis of these data indicates that participants across all groups believed that it is important for data to be collected on specific student behaviors that have been identified by the team and are related to one or more goal. However, an analysis of the comments indicates that this item could be made clearer with revisions to the wording of both the quality indicator and the intent statement. This analysis indicates that some confusion exists about the use of assistive technology in education, underscoring the need for the development of training and supports that can assist with the identification of the purposes for which students might be expected to use assistive technology and how outcomes related to those purposes can be identified and measured. Specific recommendations for revisions are included in Table 4.15 which appears at the end of this chapter, and suggestions for the development of supporting tools appear in the following chapter.

Quality Indicator and Intent Statement 35.

Quality Indicator: Evaluation of effectiveness reflects the **objective measurement** of changes in the student's performance (e.g. student preferences, productivity, participation, independence, quantity, quality, speed, accuracy, frequency, or spontaneity).

Intent: Expected changes in student performance are determined by the IEP team. The behavior targeted for data collection must be observable and measurable. Data which captures changes in student behaviors may be either quantitative, qualitative, or both.

As shown in Table 4.14, 99.2% of the participants reported that it is *very important* (90%) or *somewhat important* (9.2%) for evaluation of effectiveness to reflect the objective measurement of changes in the student's performance. One participant (0.8%) in the Consumers and Families group ranked the importance of this item as *not important*, based on the participant's concern about data. The corresponding intent statement was reported as *clear* by 112 participants (93.3%) and *unclear* by eight participants (6.7%). Table E36 in Appendix E contains the rankings of this item by respondent group.

Twenty-two participants (18.3%) made comments on Item QI-35. Two (9.1%) comments were general comments on this indicator, six (27.3%) were comments on practice, two (9.1%) were comments on the use of this item, and the remaining 12 (54.5%) were potential action items directly related to wording of this item.

Although participants acknowledged the importance of the measurement of changes in student performance when evaluating the effectiveness assistive technology, comments indicated concerns about its implementation in practice. Comments about practice focused on two closely related themes: (a) the need for balance between subjective and objective measurement, and (b) the possible limiting effects of the word “behaviors” and “performance” in the intent statement.

A sample of comments containing concerns about subjective and objective measurement included:

- *Data should be able to be quantitative and qualitative. When they just count whether my son uses tech or how many things he completes it's not sufficient. We also need to know more contextual factors like what was happening in the instances when he did and didn't use tech. (Consumers & Families)*
- *Data should be objective to the extent possible; however use of tools such as Likert-type scales involves making subjective judgments. (Higher Education AT Faculty)*

A sample of the comments with concerns with observations or suggestions related to the terms “behaviors” and “performance” included:

- *Not all functional outcomes are behaviorally related. (District & Regional AT Leaders)*
- *Outcomes are not always related to performance! (Higher Education AT Faculty)*
- *I'd use a word other than “behaviors”. (State & National AT Leaders)*

Several participants addressed both themes in a single comment. A sample of these comments included:

- *The difficulty with this concept is that often the behaviors are not objective or measurable, or there are no effective measures for the behaviors. (Higher Education AT Faculty)*

- *Student achievement results should impact this area. Also Data should be BOTH, not either. Qualitative data is too subject to subjectivity and quantitative data is too limiting, especially for this topic. (AT Policy Leaders)*
- *This is an important item, but it is difficult to capture the full intended meaning of the main point. “Observable and measurable” increase the likelihood of objectivity, but are not sufficient to insure it. Indeed, some teachers record observable and measurable behaviors in idiosyncratic (and sometimes self-serving) ways. (Higher Education AT Faculty)*

A few participants commented that the content of this indicator is similar to the content of item QI-34. A sample of comments expressing this observation included:

- *How is Q34 different from Q35? Q35 is more direct on this issue. (Consumers & Families)*
- *I think Q35 adequately covers both Q34 and Q35. (AT Policy Leaders)*
- *How does this differ from the previous indicator? (State & National AT Leaders)*

During the development of QIAT, the QIAT Consortium made the decision that, to the greatest extent feasible, each quality indicator should have only one main idea. QI-34 states that data are collected on specific student behaviors that have been identified by the team and are related to one or more goal. Although there is some similarity between that statement and the statement in QI-35 that evaluation of effectiveness reflects the objective measurement of changes in the student’s performance, the main ideas of each statement are distinct. QI-34 focuses on the relationship of assistive technology use to the student’s goals and objectives while QI-35 focuses more on the measurement of changes in student achievement. Some wording changes in each of these items may make the contrast between them clearer; however, the main idea of each of these indicators is determined to be important to the evaluation of effectiveness of assistive technology services and will continue to be included in QIAT as distinct items.

Comments related to the use of this item indicate a need for identification or development of resources that can provide guidance in how to effectively and efficiently move toward applying this indicator in common practice in schools. Comments that support this need included:

- *This is the hardest thing to do. Tools are needed for this purpose as we tend to see what we want to see rather than what is before us.* (AT Policy Leaders)
- *Some people record observable and measurable behaviors in idiosyncratic (and sometimes self-serving) ways. We need reliability checks to increase our confidence in these data. .and heighten the accountability.* (Higher Education AT Faculty)
- *Obviously, we need many new tools in this area.* (Higher Education AT Faculty)

In summary, analysis of these data indicates that the majority of participants across all groups considered it to be important for evaluation of effectiveness to reflect the measurement of changes in the student's performance and achievement. Comments on this item indicate that there is some confusion about the intent of this item and that some changes in wording would and rearrangement of examples would increase the clarity of the concepts included in this item and QI-34. Specific recommendations for revisions are included in Table 4.15 which appears at the end of this chapter, and suggestions for the development of supporting tools appear in the following chapter.

Quality Indicator and Intent Statement 36.

Quality Indicator: Effectiveness is evaluated **across environments** including during naturally occurring opportunities as well as structured activities.

Intent: The team determines the environments where the changes in student performance are expected to occur and prioritizes appropriate activities for data collection in those environments.

As shown in Table 4.14, 99.1% of the participants reported that it is *very important* (85.8%) or *somewhat important* (13.3%) for effectiveness to be evaluated across environments during both naturally occurring opportunities and structured activities. One participant (0.8%) in the Consumers and Families group ranked the importance of this item as *not important*. The corresponding intent statement was reported as *clear* by 113 participants (94.2%) and *unclear* by 7 participants (5.8%). Table E37 in Appendix E contains the rankings of this item by respondent group.

Nineteen participants (30%) made comments on Item QI-35. Two (10.5%) comments were general comments on this indicator, 14 (73.7%) were comments on practice, one (5.2%)

comment was specifically related to future developments for use of this item, and the remaining two (10.5%) were potential action items directly related to wording of this item.

Comments on this item were primarily related to current practices and focused on three themes: (a) the importance of data collection across environments and activities, (b) cautions and concerns about the breadth of possible environments and who should be involved, and, (c) perceived barriers to data collection across environments and activities. A sample of comments that reflect the importance of data collection across environments and activities included:

- *Sometimes we start using technology in one situation or one environment, but that has to quickly evolve as it works to become more encompassing. This is where the team process works so well.* (District & Regional AT Leaders)
- *Life is not always planned and controlled so we must collect data in a variety of situations and environments.* (Consumers & Families)

Comments with cautions and concerns about the breadth of possible environments and who should be involved spanned quite a range of opinions. Representative comments included:

- *The primary environment in schools must be the classroom.* (District & Regional AT Leaders)
- *This should relate back to the environments indicated in the IEP goals and objectives.* (District & Regional AT Leaders)
- *It is Important for AT to be at home also!* (Consumers & Families)

A sample of the comments that identified barriers to data collection across environments and activities included:

- *It may be challenging to do this consistently.* (AT Policy Leaders)
- *Most of this is done by the classroom teacher and they make adjustments as necessary since the IEP team members may not even be in the same town, they all trust the teacher to do this job.* (State & National AT Leaders)
- *This may be a burden until the profession figures out how to efficiently, reliably, and validly collect data.* (Higher Education AT Faculty)

- *Does this mean that some environments that should be evaluated are perhaps ignored—why not all environments discussed in the IEP?* (Consumers & Families)

A participant in the AT Policy Leaders group suggested that identification or development of tools are needed to help teams with data collection across environments in the comment, *“Observational data can be highly effective if guided by clear and precise guidelines for evaluating behavior. Tools are needed.”* Although no other comment directly suggested tools to support the development of greater understanding of the importance of collecting data on assistive technology effectiveness across environments and activities, the comments related to practice clearly indicate that such a need exists in the field. Clearly, QIAT does not intent to specify or limit the environments and activities in which assistive technology evaluation should occur. Rather, it is the intention of QIAT to suggest that teams think carefully about the activities for which the assistive technology is intended for each student and the environments in which those activities take place. Then teams can determine when and how to evaluate the effectiveness of the technology in helping the student participate in the activities in those environments and design a data collection system that is workable within those environments with the resources available to them.

Suggestions for changes in the wording of this item included:

- *In the Intent statement, “identifies” might be a friendlier term than “prioritizes”.* (Higher Education AT Faculty)
- *Maybe say “in all relevant environments” instead of “across environments”* (District & Regional AT Leaders)

In summary, analysis of these data indicates that participants in this study believed that it is highly important for effectiveness to be evaluated across environments during both naturally occurring opportunities and structured activities. Comments suggest that there are barriers to implementation that could possibly be lowered with the identification or development of tools and training that could help teams move forward. Minor wording changes are suggested to broaden the understanding of potential environments in which data collection may take place. Specific recommendations for revisions are included in Table 4.15 which appears at the end of this chapter, and suggestions for the development of supporting tools appear in the following chapter.

Quality Indicator and Intent Statement 37.

Quality Indicator: Evaluation of effectiveness is a dynamic, responsive, **ongoing process** that is reviewed periodically.

Intent: Scheduled data collection occurs over time and changes in response to both expected and unexpected results. Data collection reflects measurement strategies appropriate to individual student's needs. Team members evaluate and interpret data during periodic progress reviews.

As shown in Table 4.14, 99.2% of the participants considered it *very important* (90.0%) or *somewhat important* (9.2%) for evaluation of effectiveness to be a dynamic, responsive, ongoing process that is reviewed periodically. One participant (0.8%) in the Consumers and Families group ranked the importance of this item as *not important*, consistent with the participant's previous responses involving data. The corresponding intent statement was reported as *clear* by 113 participants (94.2%) and *unclear* by 7 participants (5.8%). Table E38 in Appendix E contains the rankings of this item by respondent group.

Twenty participants (16.7%) made comments on Item QI-37. Five (25%) comments were general comments on this indicator, 10 (50%) were comments on practice and the remaining five (25%) comments were action items that suggested minor revisions to the wording in this item.

The understanding of evaluation of effectiveness as a dynamic, responsive, ongoing process that is reviewed periodically was considered quite important to participants in this study. The comments on this item reinforced the rankings, as indicated by this sample:

- *This is an excellent item.* (Higher Education AT Faculty)
- *Having this as a clear guideline may make the difference for some schools that have intended to do AT correctly but didn't have the training, knowledge or a resource to turn to for help.* (Consumers & Families)
- *This is a critical step that often gets left out. If the AT seems to be appropriate at the beginning of its use, it generally remains in place until someone suggests a review of its use, but the evaluation should be "ongoing."* (AT Policy Leaders)
- *This will help us look at the use of AT to determine what comes next, rather than "we gave him assistive technology three years ago. We're done looking at AT."* (State & National AT Leaders)

- *It is important for all to realize that it could take some time, at times, to find the system that works best.* (District & Regional AT Leaders)

Although the importance of ongoing evaluation of effectiveness was clear, some comments on practice indicated that there are attitudinal and systemic challenges to implementation. A sample of comments included:

- *If data is collected and considered, it is rarely done on a periodic an ongoing basis.* (State & National AT Leaders)
- *We need to weigh the necessary data collection with other duties that the SD needs to perform. In small districts there may not be the personnel available to do all that needs done. Teaching the student, not data collection should be the top priority* (Consumers & Families)
- *Hard to measure this indicator re: dynamic, responsive* (AT Policy Leaders)
- *Needed, but many times gets lost in the day to day hassles of everyone.* (District & Regional AT Leaders)
- *Realistically, formal data in a one room school does not happen. The teacher knows the student very well and adjusts accordingly. Their data are in the form of projects and assignments completed by the student through the use of AT.* (State & National AT Leaders)

Although these comments point out barriers to implementation, they also indicate that there is considerable misunderstanding about what counts as data and how a dynamic, responsive system of evaluation might be put into action in diverse environments. Certainly there is a need for the identification or development of training and supporting tools that can broaden understanding of the range of sources and types of data and how they can effectively be gathered. The last comment from the participant in the State & National AT Leaders group clearly demonstrates this need.

In summary, analysis of these data indicates that participants across all groups strongly agree that is it important that evaluation of effectiveness be a dynamic, responsive, ongoing process. Comments supported this perception and supported the need for the development of materials that could assist in the development of a dynamic, responsive ongoing evaluation system. Based on these data, no substantive changes or additions on the wording of this item

are recommended. Suggestions for the development of supporting tools appear in the following chapter.

Quality Indicator and Intent Statement 38.

Quality Indicator: Data collected provides a means to **analyze response patterns and student performance.**

Intent: The team regularly analyzes data to determine student progress and error patterns.

As shown in Table 4.14, 92.5% of the participants reported that it is *very important* (74.2%) or *somewhat important* (18.3%) for data to provide a means to analyze response patterns and student performance. Four participants (3.3%)—one in the Consumers & Families group, two in the AT Policy Leaders group and one in the Higher Education AT Faculty group—ranked this item as *not important* to people with similar assistive technology interests and responsibilities. Five participants (4.2%)—two in the State & National AT Leaders group and three in the Higher Education AT Faculty group—ranked the importance of this item as *unknown*. The corresponding intent statement was reported as *clear* by 99 participants (82.5%) and *unclear* by 21 participants (17.5%). Table E39 in Appendix E contains the rankings of this item by respondent group.

Thirty-two participants (26.7%) made comments on Item QI-38. Nineteen (59.4%) comments were statements on the content of this indicator, nine (28.1%) were comments on practice, and the remaining four (12.5%) comments were potential action items directly related suggested changes in the wording of this item.

This item had one of the two highest frequencies of *not important* or *importance unknown* rankings and one of the highest numbers of comments directly related to the content of the item. A review of the comments also indicates great polarization of perceptions about the importance of the item as worded in the survey. Three themes emerged in the comments on this item: (a) questions about the necessity of this item, (b) questions about the terms “error analysis” and “response patterns”, and (c) identification of barriers to data collection.

Although the majority of participants ranked this item as important, several participants questioned the need for this item, believing that its content was implicit in

other quality indicators within QIAT. Without exception, the participants who ranked this item as *not important* made comments similar to these:

- *I don't see how this differs from previous indicators in this section. The only change is to introduce the terms "response patterns" and "error patterns," which I feel would be identified through the appropriate use of Q-34 through Q-37. (Higher Education AT Faculty)*
- *Q38 seems to be addressing procedure for implementation of Q37. Q37 really covers the issue; Q38 does not seem to add a different aspect or different value in terms of Quality indicators. (AT Policy Leaders)*
- *I'm not sure that this is so different than what is intended by the previous statements. It seems duplicative; just another way of saying the same as above. (State & National AT Leaders)*

These comments were made by participants in groups that typically do not have daily contact with students or day-to-day responsibility for ongoing data collection. It is interesting to note the contrast in the comments from the two groups who do have that contact and those responsibilities. Their comments on the importance of this item form a sharp contrast to the comments of the other groups. A sample of comments included:

- *It's nice when you can include the whole team, especially when something is not working. We had a student who would not use any aug comm device after the honeymoon period. We had the team meeting, which included family. There were those who concluded that the student just did not care to communicate but the data showed otherwise. We went back to the low-tech solution that she did use, but continue trying others on a periodic basis. (District & Regional AT Leaders)*
- *This is very helpful when making adjustments and refinements in the AT plan. (Consumers & Families)*

Comments on the second theme indicate that the terms "error analysis" and "response patterns" were not clearly understood by participants or meaningful to them.

- *It seems a given that data will be analyzed. What are error patterns? (Consumers & Families)*

- *The term error patterns needs clarification. Error patterns on the part of the staff/student/data recording system?* (State & National AT Leaders)
- *This is just unclear with present wording.* (Consumers & Families)

A sample of comments in the theme that identified perceptions of barriers to the implementation of this item included:

- *Those who deliver instruction directly should be the one's in particular who conduct such analyses. Unfortunately, most are poorly trained in these skills even as regards traditional aspects of instruction.* (AT Policy Leaders)
- *This is not addressed in current preparation programs. We lack tools for doing this. How do we mandate this as a performance standards?*(Higher Education AT Faculty)
- *Must the full team analyze? Perhaps there is a greater responsibility on the individual primarily involved with the student who makes changes accordingly.* (State & National AT Leaders)
- *Regularly for a one room school means once a year by the team, but daily by the classroom teacher.* (State & National AT Leaders)

Many of the comments on this item indicate a need for the development of tools and training that increase understanding of the need to collect data that will inform judgments about what is working, what is not, and why. It is important to know the factors involved when assistive technology is working for a student so that relevant factors can be replicated when appropriate. It is *critical* to know what factors are involved when assistive technology is *not* working for a student so that barriers to success can be addressed and lowered. All too often, when assistive technology is not producing the expected results, the decision is to change the technology even though other factors such as intervention strategies, the student's preferences, inability to do the task, or student preferences may be what really needs changing. When planning an intervention, it is important that teams understand that there are many factors that contribute to success or undermine success so that an evaluation plan that collects data related to those factors can be developed and used to collect meaningful data that can be used to guide decisions.

A sample of comments with suggested changes to the wording of this item included:

- *Avoid the use of “error patterns.”* (State & National AT Leaders)
- *It might be helpful to explain the value of analyzing response patterns.* (District & Regional AT Leaders)
- *Both the Indicator statement and the Intent statement are so minimally worded that the full intended purpose of this item is difficult to discern. Without elaboration, much of the point seems to be covered already by the Indicators above. What are “response patterns”? Some illustrative examples, comparable to those provided in other items, would be helpful to readers.* (Higher Education AT Faculty)

In summary, analysis of these data indicates that the majority of participants believed that it important for data to provide a means to analyze response patterns and student performance. Comments with suggested changes in this item ranged from minor wording changes to a call for the removal of this item from QIAT. Although the call for removal was strong in the comments, the content of this indicator is sufficiently important to evaluation of effectiveness that it is recommended that it be kept and that explanatory wording be added to clarify its meaning and intent. Specific recommendations for revisions are included in Table 4.15 which appears at the end of this chapter, and suggestions for the development of supporting tools appear in the following chapter.

Quality Indicator and Intent Statement 39.

Quality Indicator: The team makes **changes** in the student’s educational program based on data.

Intent: During the process of reviewing data, the team determines whether program changes/modifications need to be made in the environment, tasks, and tools. The team acts on these decisions and makes needed changes.

As shown in Table 4.14, 98.4% of the participants reported that it is *very important* (91.7%) or *somewhat important* (6.7%) for the student’s program to be changed when data indicates that changes are necessary. One participant (0.8%) in the Consumers and Families group ranked the importance of this item as *not important*. One participant in the District and Regional Leaders group ranked this item as importance unknown, commenting that the item was not about assistive technology and, therefore, should not be included in these indicators.

The corresponding intent statement was reported as *clear* by 112 participants (93.3%) and *unclear* by 8 participants (6.7%). Table E40 in Appendix E contains the rankings of this item by respondent group.

Sixteen participants (13.3%) made comments on Item QI-39. Twelve (75%) comments were most closely related to practice, and the remaining four (25%) were potential action items directly related to wording of this item.

Two themes emerged in the comments on practice: (a) the importance of making changes based on data and (b) concerns and challenges that are perceived to be barriers to implementation of this item.

Comments on the importance of making changes based on data included:

- *Wouldn't it be nice!* (AT Policy Leaders)
- *This is important. Sometimes the changes that data show are needed might not be what we expect or have in mind but we need to make them.* (District & Regional AT Leaders)

The majority of comments on this item have to do with perceived barriers to making changes based on data. A sample of comments include:

- *School sites need to take ownership of the care and maintenance of equipment, know how to do some basic trouble shooting, and report repair needs beyond the scope of school-site expertise on a timely basis.* (District & Regional AT Leaders)
- *Research on curriculum based assessment reveals that teachers do not do this. Why should we think it will happen with AT?* (Higher Education AT Faculty)
- *Clear but not likely.* (State & National AT Leaders)
- *What is the reality of teams being this available? Doesn't effective practice (from teachers) imply changes as needed within the instructional/implementation of target skills?* (State & National AT Leaders)

Comments with suggestions for additions or changes to the wording were generally related to changes in order of the words used in the item. However, one comment from a participant in the Higher Education AT Faculty group stood out as very important to improving the intent and clarity of this item.

- *In the Indicator statement, “based on data” is terse phrasing. I suggest replacing it with something like “based on their interpretation of the collected data.” This also might link it better to previous items. The use of “tools” in the Intent statement is a change in phrasing from the previous items. I suggest including mention of “assistive technology” at least once in either the Indicator statement or the Intent statement.*

In summary, analysis of these data indicates that participants across all groups believed that it is important for the student’s educational program to be changed when data indicates that changes are necessary. Comments indicate that a clearer connection between assistive technology and the student’s progress in the educational program could be made clearer with some changes to the wording of this item. Specific recommendations for revisions are included in Table 4.15 which appears at the end of this chapter, and suggestions for the development of supporting tools appear in the following chapter.

Research Question 5: Usefulness of Quality Indicators

Research Question Five sought to determine the level to which the participants in this study believed that the quality indicators and intent statements contained in QIAT would be useful to people with assistive technology interests and responsibilities similar to their own. This section presents the results and discussion of responses to this question.

As shown in Table 4.17, 99.2% of the participants in this investigation thought that the quality indicators and intent statements contained in QIAT were *very useful* (78.3%) or *somewhat useful* (20.8%) to people with assistive technology interests and responsibilities similar to their own. One participant (.8%) in the AT Policy Leaders group ranked this item *usefulness unknown* and did not include a comment on the ranking. Table E41 in Appendix E contains the rankings of this item by respondent group.

Thirty-six participants (30.8%) made comments on their perceptions of the need for quality indicators. Twenty-four (66.6%) comments were general comments on usefulness of QIAT and the remaining 12 comments (33.3%) related to the identification or future development of training and materials that increase the usefulness of QIAT.

Responses to this item clearly indicated that participants believed that QIAT would be useful to people with assistive technology interests and responsibilities similar to their own.

Such comments focused on two themes: (a) ways in which participants anticipate that QIAT would be useful, and (b) ways that QIAT has already been useful.

A sample of comments on ways in which participants anticipate that QIAT would be useful included:

- *I think these quality indicators should be distributed to state education agencies and local education agencies to guide their AT considerations. (State & National AT Leaders)*
- *I believe that QIAT is so important that I would like to see special ed. administrators, school advocates, and lawyers receive training on QIAT! So far in our state, we've only tapped the special ed. audience. (AT Policy Leaders)*
- *I think that they will drive districts to develop the components needed to make AT an integral part of their programs. What has been developed here is most ambitious and challenges people to rise to the highest level of implementation. (Consumers & Families)*
- *QIAT is appropriate for determining current organizational and procedural status regarding AT, and helping guide goal-setting for AT Teams. (District & Regional AT Leaders)*
- *Many people are just starting with AT and need direction in AT program development. I think this is a document that should go to all universities with general and special education programs. Maybe that would give them a wake up call to include more AT in teacher preparation. . . and related service providers, too! (State & National AT Leaders)*

Comments that report the current usefulness of QIAT by participants, who have already been using it, include:

- *QIAT helps families understand and support the educational process, it's strengths and weaknesses, and how to work within the system for their students' betterment. Sadly, families are often kept in the dark as to what is available, who to contact, and how to implement. It doesn't mean the services aren't available, just that families have not known what services to ask about. (Consumers & Families)*

- *I think QIAT gives us a true way of objectively looking at what we are doing, how we are doing it and where we need to be going. My office has used these indicators since their inception to grow and develop, providing quality services for our students. (District & Regional AT Leaders)*
- *QIAT assists me as a state program specialist in moving a state which has not had a common set of beliefs or practices to a common point of understanding. The Indicators will allow practitioners to build on their current strengths to meet more sophisticated challenges. They are written to be meaningful to a wide range of special educators, so that they are usable to everyone involved with a student. (State & National AT Leaders)*
- *QIAT is and will continue to be useful in the preparation and training of new personnel. Persons new to the field need to know what is expected of them and how to reach the highest levels of professional service. (Higher Education AT Faculty)*
- *We are using QIAT like state standards to guide local school system on providing AT services in a way that is compliant with IDEA and measures progress toward improving AT services. We are purposely using this strategy because our state department of education has no written policies, procedures, or guidelines about providing AT devices and services other than what is available in state regulations, as noted in NASDSE and NATRI data on AT policies. (AT Policy Leaders)*

Other comments on this question pertained most directly to the need for the future development of materials and training that would support the usefulness of QIAT. A sample of comments included:

- *QIAT will be very useful, especially if it is used as a basis for development of other information and materials. (AT Policy Leaders)*
- *QIAT has the potential of being useful to individuals involved in training pre-service and inservice educators. To encourage more universal adoption there might have to be an abbreviated version that targets five main points that should be incorporated into teacher preparation. (Higher Education AT Faculty)*

- *An aggressive “marketing plan” needs to be implemented to assure ALL school systems are aware of QIAT. .perhaps beginning at the State Dept of Ed level. (AT Policy Leaders)*
- *A brief, clearly stated version is mandatory as the format and paper work for an IEP is already monumental. (Consumers & Families)*
- *I could see these developed beyond a list to include text/narrative which assisted folks in implementation. The indicators could be a book. (AT Policy Leaders)*

Comments on this question, which appeared last in the survey, also included comments that were directed to the QIAT Consortium for their work in leading the development of this body of work. A sample of such comments included:

- *This work on quality indicators is superb! Hats off to the QIAT team. These are useful for beginning as well as senior teams. They help us track our system/'s progress. These are also useful for educating and soliciting support of administrators. (AT Policy Leaders)*
- *What an incredible job you all have done! I think what you have put together will be incredibly valuable. I attended the first meeting when QIAT was shared at Closing the Gap in 1998. It has grown so much since then!!!! (State & National AT Leaders)*

In summary, analysis of these data indicate that participants in this investigation across all groups either are finding QIAT useful already or anticipate that it will be useful to people with assistive technology interests and responsibilities similar to their own. Further, participants from every group represented believed that there is a need for the development of additional materials that support the use of QIAT by people with varied assistive technology interests and responsibilities. Finally, the data confirm the importance of QIAT and validate the efforts of the QIAT Consortium to date. They also point to the need for that group to continue its efforts to produce information and materials that are designed to improve the delivery of assistive technology services. A brief description of supporting documents and materials currently under development and suggestions for the future development of supporting materials that could be addressed by the QIAT Consortium appear in the following chapter.

**Table 4.1. Responses to Need for Quality Indicators
(N=120)**

	Need for Quality Indicators			
	Need Unknown	No Need	Some Need	Strong Need
<i>N</i>	0	1	21	98
<i>%</i>		0.8	17.5	81.7

Table 4.2. Responses to Quality Indicators for Administrative Support of Assistive Technology Services

Quality Indicator	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
QI-1: Written procedural guidelines <i>N</i> %	0	0	4 3.3	116 96.7	11 9.2	109 90.8
QI-2: Broadly disseminated policies <i>N</i> %	0	0	14 11.7	106 88.3	6 5.0	114 95.0
QI-3: Written job requirements <i>N</i> %	0	2 1.7	33 27.5	85 70.8	14 11.6	106 88.3
QI-4: Range of competent personnel <i>N</i> %	1 0.8	1 0.8	19 15.8	99 82.2	15 12.5	105 87.5
QI-5: Planning and budgeting process <i>N</i> %	0	0	6 5.0	114 95.0	15 12.5	105 87.7
QI-6: Continuous learning opportunities <i>N</i> %	0	0	5 4.2	115 95.8	5 4.2	115 95.8
QI-7: Systematic evaluation of services <i>N</i> %	3 2.5	0	21 17.5	96 80.0	23 19.2	97 80.8

**Table 4.3. Recommended Revisions to
Quality Indicators for Administrative Support of Assistive Technology Services**

Item	Original	Revised
<p>QI-1</p>	<p><u>Quality Indicator:</u> The education agency has written procedural guidelines that ensure equitable access to assistive technology devices and services for students with disabilities, if required for a free, appropriate, public education (FAPE).</p> <p><u>Intent:</u> The education agency has clear written procedural guidelines that provide equal access to assistive technology devices and services for all students. Access to AT is the same for the student regardless of abilities, economic status or geographic location. All district personnel are familiar with the procedural guidelines.</p>	<p><u>Quality Indicator:</u> No change.</p> <p><u>Intent:</u> Clearly written procedural guidelines help ensure that students with disabilities have the assistive technology devices and services they require for educational participation and benefit. Access to assistive technology is ensured regardless of severity of disability, educational placement, geographic location, or economic status.</p>
<p>*</p>	<p>QI-2</p> <p><u>Quality Indicator:</u> The education agency has clearly defined and broadly disseminated policies and procedures for providing effective assistive technology devices and services.</p> <p><u>Intent:</u> District personnel in special education and general education are familiar with the policies and procedures in both special education as well as general education. The procedures are readily available at each campus and all school personnel know how to access the procedures.</p>	<p><u>Quality Indicator:</u> The education agency broadly disseminates clearly defined procedures for accessing and providing assistive technology services and supports the implementation of those guidelines.</p> <p><u>Intent:</u> Procedures are readily available in multiple formats to families and school personnel in special and general education. All are aware of how to locate the procedures and are expected to follow procedures whenever appropriate.</p>

(continued)

Table 4.3 (continued). Revisions to Administrative Support

Item	Original	Revised
<p>QI-3</p>	<p><u>Quality Indicator:</u> The education agency has written descriptions of job requirements, which include knowledge, skills, and responsibilities for staff members who provide assistive technology services.</p>	<p><u>Quality Indicator:</u> The education agency includes appropriate assistive technology responsibilities in written descriptions of job requirements for each position in which activities impact assistive technology services.</p>
	<p><u>Intent:</u> The education agency has clear written statements of job requirements that address the necessary AT knowledge, skills and responsibilities for all staff members. This includes all personnel from the classroom through central office. This could be reflected in a position description, assignment of duty statement or some other written description.</p>	<p><u>Intent:</u> Appropriate responsibilities and the knowledge, skills, and actions required to fulfill them are specified for positions from the classroom through the central office. These descriptions will vary depending upon the position and may be reflected in a position document, assignment of duty statement or some other written description.</p>
<p>*</p>	<p>QI-4 <u>Quality Indicator:</u> The education agency employs a range of personnel with competencies needed to provide quality assistive technology services within their areas of primary responsibility.</p>	<p><u>Quality Indicator:</u> The education agency employs personnel with the competencies needed to support quality assistive technology services within their primary areas of responsibility at all levels of the organization.</p>
	<p><u>Intent:</u> The agency employs staff members from the classroom through the central office who have knowledge and skills of AT commensurate with job requirements. Though classroom teachers, supervisors and purchasing agents may need different knowledge and skills related to assistive technology, all must be knowledgeable for the system to work well.</p>	<p><u>Intent:</u> Although different knowledge, skills, and levels of understanding are required for various jobs, all understand and are able to fulfill their parts in developing and maintaining a collaborative system of effective assistive technology services to students.</p>

(continued)

Table 4.3 (continued). Revisions to Administrative Support

Item	Original	Revised
QI-5	<p><u>Quality Indicator:</u> The education agency includes assistive technology in the technology planning and budgeting process.</p> <p><u>Intent:</u> Historically, the AT needs of the agency have either been separate or omitted. A comprehensive technology plan provides for the technology needs of all students in both general education as well as special education.</p>	<p><u>Quality Indicator:</u> No change</p> <p><u>Intent:</u> A comprehensive, collaboratively-developed technology plan provides for the technology needs of all students in general education and special education.</p>
QI-6	<p><u>Quality Indicator:</u> The education agency provides continuous learning opportunities about assistive technology devices, strategies and resources for staff, family and students.</p> <p><u>Intent:</u> The training addresses the needs of the student, the family, and all of the staff involved with the student. Ongoing training and technical assistance opportunities are readily accessible to all members of the IEP team. The training and technical assistance includes training on AT devices, strategies and resources to support IEP goals and objectives.</p>	<p><u>Quality Indicator:</u> The education agency provides access to on-going learning opportunities about assistive technology for staff, family, and students.</p> <p><u>Intent:</u> Learning opportunities are based on the needs of the student, the family, and the staff and are readily available to all. Training and technical assistance include any topic pertinent to the selection, acquisition, or use of assistive technology or any other aspect of assistive technology service delivery.</p>

(continued)

Table 4.3 (continued). Revisions to Administrative Support

Item	Original	Revised
<p>QI-7</p>	<p><u>Quality Indicator:</u> The education agency uses a systematic procedure to evaluate the components of assistive technology services to ensure accountability for student progress.</p> <p><u>Intent:</u> There is a clear systematic procedure with which all administrators are familiar and use regularly. This procedure is used consistently across the agency at both central office and the building level. The components of this process include budgeting, planning, delivery and evaluation of AT services.</p>	<p><u>Quality Indicator:</u> The education agency uses a systematic process to evaluate all components of the agency-wide assistive technology program.</p> <p><u>Intent:</u> The components of the evaluation process include, but are not limited to, planning, budgeting, decision-making, delivering AT services to students, and evaluating the impact of AT services on student achievement. There are clear, systematic evaluation procedures that all administrators know about and use on a regular basis at central office and building levels.</p>

Note: Asterisk denotes possible need for revalidation because of added dimension.

Table 4.4. Responses to Quality Indicators for Consideration of Assistive Technology Needs

Quality Indicator	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
QI-8: Considered for all students w/disabilities <i>N</i> %	0	0	1 0.8	119 99.2	17 14.2	103 85.8
QI-9: Team has knowledge and skills <i>N</i> %	0	0	7 5.8	113 94.2	10 8.3	110 91.7
QI-10: Decision-making process <i>N</i> %	0	0	17 14.2	103 85.8	13 10.8	107 89.2
QI-11: Continuum of devices and services <i>N</i> %	0	0	11 9.2	109 90.8	10 8.3	110 91.7
QI-12: Access to curriculum and IEP goals <i>N</i> %	0	2 1.6	5 4.2	113 94.2	15 12.5	105 87.5
QI-13: Documentation <i>N</i> %	0	0	8 6.7	11 93.3	17 14.2	103 85.8

**Table 4.5. Recommended Revisions to
Quality Indicators for Consideration of Assistive Technology Needs**

Item	Original	Revised
<p>QI-8</p>	<p><u>Quality Indicator:</u> Assistive technology devices and services are considered for all students with disabilities regardless of type or severity of disability.</p> <p><u>Intent:</u> IDEA '97 is based on a child-centered process. Decisions regarding the need for assistive technology are determined by the unique educational needs of each individual student. Services cannot be determined based on categories.</p>	<p><u>Quality Indicator:</u> No change</p> <p><u>Intent:</u> Consideration of assistive technology need is required by IDEA '97 and is based on the unique educational needs of each student. Students are not excluded from consideration of AT for any reason. (e.g. type of disability, age, administrative concerns, etc.)</p>
<p>QI-9</p>	<p><u>Quality Indicator:</u> The IEP team has the knowledge and skills to make informed assistive technology decisions.</p> <p><u>Intent:</u> The IEP team members collectively use their skills to recommend assistive technology devices and services needed to remove barriers to student performance. When the assistive technology needs are beyond the knowledge and scope of the IEP team, additional support from other resources is sought.</p>	<p><u>Quality Indicator:</u> IEP team members have the collective knowledge and skills needed to make informed assistive technology decisions and seek assistance when needed.</p> <p><u>Intent:</u> IEP team members combine their knowledge and skills to determine if assistive technology devices and services are needed to remove barriers to student performance. When the assistive technology needs are beyond the knowledge and scope of the IEP team, additional resources and support are sought.</p>

(continued)

Table 4.5 (continued). Revisions to Consideration of Need

Item	Original	Revised
<p>QI-10</p>	<p><u>Quality Indicator:</u> The IEP team uses a collaborative decision-making process based on data about the student environment and tasks to determine assistive technology needs.</p>	<p><u>Quality Indicator:</u> During the development of the individualized educational program, the IEP team consistently uses a collaborative decision-making process that supports systematic consideration of each student’s possible need for assistive technology devices and services.</p>
	<p><u>Intent:</u> Although IDEA requires that the AT needs of students be considered during the development of the IEP, it does not specify a process. The IEP team uses a state or district determined process to make informed decisions regarding the need for assistive technology. The process is communicated and used consistently across the district.</p>	<p><u>Intent:</u> A collaborative process that ensures that all IEP teams effectively consider the assistive technology of students is defined, communicated, and consistently used throughout the agency. Processes may vary from agency to agency to most effectively address student needs under local conditions.</p>
<p>NEW</p>		<p><u>Quality Indicator:</u> The IEP team gathers and analyzes data about the student, customary environments, educational goals, and tasks when considering a student’s need for assistive technology devices and services.</p>
		<p><u>Intent:</u> The IEP team shares and discusses information about the student, present levels of achievement in relationship to the environments, and tasks to determine if the student requires assistive technology devices and services to participate actively, work on expected tasks, and make progress toward mastery of educational goals.</p>

(continued)

Table 4.5 (continued). Revisions to Consideration of Need

Item	Original	Revised
<p>QI-11</p>	<p><u>Quality Indicator:</u> A continuum of assistive technology devices and services is explored.</p> <p><u>Intent:</u> The IEP team considers a range of tools and strategies, including no tech, low tech and high tech to meet the educational needs of the student. Consideration is not limited to the devices and services currently available within the district.</p>	<p><u>Quality Indicator:</u> When assistive technology is needed, the IEP team explores a range of assistive technology devices, services, and other supports that address identified needs.</p> <p><u>Intent:</u> The IEP team considers various supports and services that address the educational needs of the student and may include no tech, low tech, mid-tech, and/or high tech solutions and devices. IEP team members do not limit their thinking to only those devices and services currently available within the district.</p>
<p>QI-12</p>	<p><u>Quality Indicator:</u> Decisions regarding the need for assistive technology devices and services are made based on access to the curriculum and the student’s IEP goals and objectives.</p> <p><u>Intent:</u> After the IEP team determines the curricular tasks the student needs to complete and develops the goals and objectives, the team considers whether assistive technology is required to accomplish those tasks.</p>	<p><u>Quality Indicator:</u> Decisions regarding the need for assistive technology devices and services are based on the student’s IEP goals and objectives, access to curricular and extracurricular activities, and progress in the general education curriculum.</p> <p><u>Intent:</u> As the IEP team determines the tasks the student needs to complete and develops the goals and objectives, the team considers whether assistive technology is required to accomplish those tasks.</p>

(continued)

Table 4.5 (continued). Revisions to Consideration of Need

Item	Original	Revised
QI-13	<p><u>Quality Indicator:</u> Decisions regarding the need for assistive technology devices and services and supporting data are documented.</p> <p><u>Intent:</u> The IEP team determines whether or not assistive technology devices and/or services are needed. The IEP team uses something more than a check box to document the basis of the decision.</p>	<p><u>Quality Indicator:</u> The assistive technology consideration process and results are documented in the IEP and include a rationale for the decision and supporting evidence.</p> <p><u>Intent:</u> Even though IEP documentation may include a checkbox verifying that assistive technology has been considered, the reasons for the decisions and recommendations should be clearly stated. Supporting evidence may include the results of assistive technology assessments, data from device trials, differences in achievement with and without assistive technology, student preferences for competing devices, and teacher observations, among others.</p>

**Table 4.6. Recommended Revision to the Order of
Quality Indicators for Consideration of Assistive Technology Needs**

- QI-8** Assistive technology devices and services are **considered for all students with disabilities** regardless of type or severity of disability.
- QI-9** During the development of the individualized educational program, the IEP team consistently uses a **collaborative decision-making process** that supports systematic consideration of each student’s possible need for assistive technology devices and services.
- QI-10** IEP team members have the collective **knowledge and skills** needed to make informed assistive technology decisions and seek assistance when needed.
- Q-11** Decisions regarding the need for assistive technology devices and services are **based on the student’s IEP goals and objectives, access to curricular and extracurricular activities, and progress in the general education curriculum.**
- NEW** The IEP team **gathers and analyzes data** about the student, customary environments, educational goals, and tasks when considering a student’s need for assistive technology devices and services.
- QI-12** When assistive technology is needed, the IEP team **explores a range** of assistive technology devices, services, and other supports that address identified needs.
- QI-13** The assistive technology consideration process and **results are documented in the IEP** and include a rationale for the decision and supporting evidence.
-

Table 4.7. Responses to Quality Indicators for Assessment of Assistive Technology Needs

Quality Indicator	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
QI-14: Clear assessment procedures						
<i>N</i>	0	0	13	107	8	112
%			10.8	89.2	6.7	93.3
QI-15: Multidisciplinary team						
<i>N</i>	2	0	9	109	11	109
%	1.7		7.5	90.8	9.2	90.8
QI-16: Student's customary environments						
<i>N</i>	0	1	16	103	9	111
%		0.8	13.3	85.8	7.5	92.5
QI-17: Reasonable timelines						
<i>N</i>	0	1	19	100	15	105
%		0.8	15.8	83.3	12.5	87.5
QI-18: Recommendations based on data						
<i>N</i>	0	1	3	116	13	107
%		0.8	2.5	96.7	10.8	89.2
QI-19: Documented recommendations						
<i>N</i>	0	0	9	111	12	108
%			7.5	92.5	10.0	90.0
QI-20: Reassessed according to need						
<i>N</i>	0	0	7	113	13	107
%			5.8	94.2	10.8	89.2

**Table 4.8. Recommended Revisions to
Quality Indicators for Assessment of Assistive Technology Needs**

Item	Original	Revised
<p>QI-14</p>	<p><u>Quality Indicator:</u> Assistive technology assessment procedures are clearly defined and consistently used.</p> <p><u>Intent:</u> Throughout the educational agency, personnel are well informed and trained about assessment procedures and how to initiate them. There is consistency throughout the agency in the conducting of assistive technology assessments.</p>	<p><u>Quality Indicator:</u> Procedures for all aspects of assistive technology assessment are clearly defined and consistently applied.</p> <p><u>Intent:</u> Throughout the educational agency, personnel are well informed and trained about assessment procedures and how to initiate them. There is consistency throughout the agency in the conducting of assistive technology assessments. Procedures may include—but are not limited to—initiating an assessment, planning and conducting an assessment, conducting trials, reporting results, and resolving conflicts.</p>
<p>QI-15</p>	<p><u>Quality Indicator:</u> Assistive technology assessments are conducted by a multidisciplinary team which actively involves the student and family or caregivers.</p> <p><u>Intent:</u> The multidisciplinary team conducting an assistive technology assessment is comprised of people who collectively have knowledge about the abilities and needs of the student, the demands of the customary environments, the educational objectives, and assistive technology. Various team members bring different information and strengths to the assessment process.</p>	<p><u>Quality Indicator:</u> Assistive technology assessments are conducted by a team with the collective knowledge and skills needed to determine possible assistive technology solutions that address the needs and abilities of the student, demands of the student’s customary environments, educational goals, and related activities.</p> <p><u>Intent:</u> Team membership is flexible and varies according to the knowledge and skills needed to address student needs. The student and family are active team members. Various team members bring different information and strengths to the assessment process.</p>

(continued)

Table 4.8 (continued). Revisions to Assessment of Needs

Item	Original	Revised
<p>QI-16</p>	<p><u>Quality Indicator:</u> Assistive technology assessments are conducted in the student’s customary environments.</p>	<p><u>Quality Indicator:</u> All assistive technology assessments include a functional assessment in the student’s customary environments, such as the classroom, lunchroom, playground, home, community setting, or work place.</p>
	<p><u>Intent:</u> The assessment process takes place in customary environments (e.g., classroom, lunchroom, home, playground, etc.) because of the varied characteristics and demands in those environments. In each environment, district personnel, the student and family or caregivers are involved in gathering specific data and relevant information.</p>	<p><u>Intent:</u> The assessment process includes activities that occur in the student’s current or anticipated environments because characteristics and demands in each may vary. Team members work together to gather specific data and relevant information in identified environments to contribute to assessment decisions.</p>
<p>QI-17</p>	<p><u>Quality Indicator:</u> Assistive technology assessments, including needed trials, are completed within reasonable timelines.</p>	<p><u>Quality Indicator:</u> No change</p>
	<p><u>Intent:</u> Assessments are initiated in a timely fashion and completed within a time line that is reasonable as determined by the IEP team. The timeline complies with applicable state and agency requirements.</p>	<p><u>Intent:</u> Assessments are initiated in a timely fashion and proceed according to a timeline that the IEP team determines to be reasonable, based on the complexity of student needs and assessment questions. Timelines comply with applicable state and agency requirements.</p>

(continued)

Table 4.8 (continued). Revisions to Assessment of Needs

Item	Original	Revision
<p>QI-18</p>	<p><u>Quality Indicator:</u> Recommendations from assistive technology assessments are based on data about the student, environments and tasks.</p>	<p><u>Quality Indicator:</u> No change</p>
	<p><u>Intent:</u> The assessment includes information about the student's needs and abilities, demands of the environments, and educational tasks and objectives. It may include trial use of the technology in the environments in which it will be used.</p>	<p><u>Intent:</u> The assessment includes information about the student's needs and abilities, demands of various environments, educational tasks, and objectives. Data may be gathered from sources such as student performance records, results of experimental trials, direct observation, interviews with students or significant others, and anecdotal records.</p>
<p>* QI-19</p>	<p><u>Quality Indicator:</u> The assessment provides the IEP team with documented recommendations about assistive technology devices and services.</p>	<p><u>Quality Indicator:</u> The assessment provides the IEP team with clearly documented recommendations that guide decisions about the selection, acquisition, and use of assistive technology devices and services.</p>
	<p><u>Intent:</u> The recommendations from the assessment are clear and concise so that the IEP team can use them in decision-making and program development.</p>	<p><u>Intent:</u> A written rationale is provided for any recommendations that are made. Recommendations may include assessment activities and results, suggested devices and alternative ways of addressing needs, services required by the student and others, and suggested strategies for implementation and use.</p>

(continued)

Table 4.8 (continued). Revisions to Assessment of Needs

Item	Original	Revision
QI-20	<p><u>Quality Indicator:</u> Assistive technology needs are reassessed by request or as needed based on changes in the student, environments and/or tasks.</p> <p><u>Intent:</u> An assistive technology assessment is available any time it is needed due to such changes or when it is requested by the parent or other members of the IEP team.</p>	<p><u>Quality Indicator:</u> Assistive technology needs are reassessed any time changes in the student, the environments and/or the tasks result in the student’s needs not being met with current devices and/or services.</p> <p><u>Intent:</u> An assistive technology assessment is available any time it is needed due to changes that have affected the student. The assessment can be requested by the parent or any other member of the IEP team.</p>

Note: Asterisk denotes possible need for revalidation because of added dimension.

Table 4.9. Responses to Quality Indicators for Including Assistive Technology in the IEP

Quality Indicator	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
QI-21: Guidelines for documenting needs						
<i>N</i>	2	1	15	102	8	112
%	1.7	0.8	12.5	85.0	6.7	93.3
QI-22: Clear and complete description						
<i>N</i>	0	0	10	110	17	103
%			8.3	91.7	14.2	85.8
QI-23: Tool to support achievement						
<i>N</i>	0	2	10	108	13	107
%		1.7	8.3	90.0	10.8	89.2
QI-24: Measurable and observable outcomes						
<i>N</i>	0	4	14	102	17	103
%		3.3	11.7	85.0	14.2	85.8
QI-25: Services are documented						
<i>N</i>	0	1	12	107	11	109
%		0.8	10.0	89.2	9.2	90.8

**Table 4.10. Recommended Revisions to
Quality Indicators for Including Assistive Technology in the IEP**

Item	Original	Revised
* QI-21	<p><u>Quality Indicator:</u> The education agency has guidelines for documenting assistive technology needs in the IEP and everyone on the IEP team is aware of them.</p> <p><u>Intent:</u> Education agencies give instructions to IEP teams as to how IEPs should be written. These instructions include guidance about documentation of assistive technology needs.</p>	<p><u>Quality Indicator:</u> The education agency has guidelines for documenting assistive technology needs in the IEP and requires their consistent application.</p> <p><u>Intent:</u> The education agency provides guidance to IEP teams about how to effectively document assistive technology needs, devices, and services as a part of specially designed instruction, related services, or supplementary aids and services.</p>
QI-22	<p><u>Quality Indicator:</u> Assistive technology is included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used.</p> <p><u>Intent:</u> IEPs are written in such a manner that everyone who attended the IEP meeting and other people who might need to use the information to implement the plan understand what is to be done. IEPs are clearly written with as little “jargon” as possible. They give a clear picture of the devices and services which the IEP team determined were necessary.</p>	<p><u>Quality Indicator:</u> Assistive technology is included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used to address student needs and achieve expected results.</p> <p><u>Intent:</u> IEPs are written so that participants in the IEP meeting and others who use the information to implement the student’s program understand what technology is to be available, how it is to be used, and under what circumstances. “Jargon” is avoided.</p>

(continued)

Table 4.10 (continued). Revisions to Including AT in IEP

Item	Original	Revised
<p>QI-23</p>	<p><u>Quality Indicator:</u> Assistive technology is used as a tool to support achievement of IEP goals and objectives as well as participation and progress in the general curriculum.</p>	<p><u>Quality Indicator:</u> The IEP illustrates that assistive technology is a tool to support achievement of goals and progress in the general curriculum by establishing a clear relationship between student needs, assistive technology devices and services, and the student’s goals and objectives.</p>
	<p><u>Intent:</u> There should be a clear relationship between assistive technology devices and services included in an IEP and the goals and objectives developed by the team. Most goals and objectives should be developed before decisions about assistive technology use are made.</p>	<p><u>Intent:</u> Most goals are developed before decisions about assistive technology are made. However, this does not preclude the development of additional goals, especially those related specifically to the appropriate use of assistive technology.</p>
<p>QI-24</p>	<p><u>Quality Indicator:</u> IEP content regarding assistive technology use is written in language that describes measurable and observable outcomes.</p>	<p><u>Quality Indicator:</u> IEP content regarding assistive technology use is written in language that describes how assistive technology contributes to achievement of measurable and observable outcomes.</p>
	<p><u>Intent:</u> At the point of periodic review, the IEP is used to measure whether the district met its commitments and the whether the educational goals set for the child were appropriate. Content which describes measurable and observable outcomes for assistive technology allows the team to review the success of the plan.</p>	<p><u>Intent:</u> Content which describes measurable and observable outcomes for assistive technology use enables the IEP team to review the student’s progress and determine whether the assistive technology has had the expected impact.</p>

(continued)

Table 4.10 (continued). Revisions to Including AT in the IEP

Item	Original	Revised
<p>QI-25</p>	<p><u>Quality Indicator:</u> All services needed to implement assistive technology use are documented in the IEP.</p> <p><u>Intent:</u> IDEA lists a variety of services (i.e. evaluating, customizing, maintaining, coordinating services, and training for the child and family, technical assistance for professionals) which must be provided to support the child’s use of an assistive technology device.</p>	<p><u>Quality Indicator:</u> All services that the IEP team determines are needed to support the selection, acquisition, and use of assistive technology devices are designated in the IEP.</p> <p><u>Intent:</u> The provision of assistive technology services is critical to the effective use of assistive technology devices. It is important that the IEP describes the assistive technology services that are needed for student success. Such services may include evaluation, customization or maintenance of devices, coordination of services, and training for the student and family and professionals, among others.</p>

Note: Asterisk denotes possible need for revalidation because of added dimension.

**Table 4.11. Recommended Revision to the Order of
Quality Indicators for Inclusion of Assistive Technology in the IEP**

- QI-21** The education agency has **guidelines for documenting** assistive technology needs in the IEP and requires their consistent application.
- QI-22** All **services** that the IEP team determines are needed to support the selection, acquisition, and use of assistive technology devices are designated in the IEP.
- QI-23** Assistive technology is included in the IEP in a manner that provides a **clear and complete** description of the devices and services to be provided and used to address student needs and achieve expected results.
- QI-24** The IEP illustrates that assistive technology is a **tool to support achievement of goals and progress in the general curriculum** by establishing a clear relationship between student needs, assistive technology devices and services, and the student's goals and objectives.
- QI-25** IEP content regarding assistive technology use is written in language that describes how assistive technology contributes to achievement of **measurable and observable outcomes**.
-

Table 4.12. Responses to Quality Indicators for Implementation of Assistive Technology Services

Quality Indicator	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
QI-26: Collaboratively developed plan						
<i>N</i>	1	2	14	103	7	113
%	0.8	1.7	11.7	85.8	5.8	94.2
QI-27: Integrated into curriculum						
<i>N</i>	0	1	1	118	7	113
%		0.8	0.8	98.3	5.8	94.2
QI-28: Shared responsibility						
<i>N</i>	0	0	14	106	14	106
%			11.7	88.3	11.7	88.3
QI-29: Multiple strategies						
<i>N</i>	5	4	11	100	19	101
%	4.2	3.3	9.2	83.3	15.8	84.2
QI-30: Training student, staff, family						
<i>N</i>	0	0	2	118	6	114
%			1.7	98.3	5.0	95.0
QI-31: Decisions and data documented						
<i>N</i>	2	1	10	107	9	111
%	1.7	0.8	8.3	89.2	7.5	92.5
QI-32: Management and maintenance						
<i>N</i>	0	0	7	113	6	114
%			5.8	94.2	5.0	95.0

**Table 4.13. Recommended Revisions to QIAT
Quality Indicators for Implementation of Assistive Technology Services**

Item	Original	Revised
QI-26	<p><u>Quality Indicator:</u> Assistive technology implementation proceeds according to a collaboratively developed plan.</p> <p><u>Intent:</u> Following IEP development, all those involved in implementation work together to develop a written action plan that provides detailed information about how the assistive technology will be used in specific educational settings, what will be done, and who will do it.</p>	<p><u>Quality Indicator:</u> No change</p> <p><u>Intent Statement:</u> No change</p>
QI-27	<p><u>Quality Indicator:</u> Assistive technology is integrated into the curriculum and daily activities of the student.</p> <p><u>Intent:</u> Assistive Technology is used when and where needed to facilitate the student's access to the curriculum, and active participation in educational activities and routines.</p>	<p><u>Quality Indicator:</u> Assistive technology is integrated into the curriculum and daily activities of the student across environments.</p> <p><u>Intent:</u> Assistive technology is used when and where it is needed to facilitate the student's access to, and mastery of, the curriculum. Assistive technology may facilitate active participation in educational activities, assessments, extracurricular activities, and a sample of routines.</p>
QI-28	<p><u>Quality Indicator:</u> Team members in all of the child's environments share responsibility for implementation of the plan.</p> <p><u>Intent:</u> Persons working with the student in each environment know what to do to support the student using assistive technology.</p>	<p><u>Quality Indicator:</u> Persons supporting the student across all environments in which the assistive technology is expected to be used share responsibility for implementation of the plan.</p> <p><u>Intent:</u> All persons who work with the student knows their role and responsibilities, are able to support the student using assistive technology, and are expected to do so.</p>

(continued)

Table 4.13 (continued). Revisions to Implementation of AT Services

Item	Original	Revised
<p>QI-29</p>	<p><u>Quality Indicator:</u> The student uses multiple strategies to accomplish tasks and the use of assistive technology may be included in those strategies.</p>	<p><u>Quality Indicator:</u> Persons supporting the student provide opportunities for the student to use a variety of strategies—including assistive technology— and to learn which strategies are most effective for particular circumstances and tasks.</p>
	<p><u>Intent:</u> Assistive Technology tools are used when needed to remove barriers to participation and/or performance. Alternate strategies may include use of the student's natural abilities, other supports, or modifications to the curriculum, task or environment. At times these alternate strategies may be more efficient than the use of assistive technology.</p>	<p><u>Intent:</u> When and where appropriate, students are encouraged to consider and use alternative strategies to remove barriers to participation or performance. Strategies may include the student's natural abilities, use of assistive technology, other supports, or modifications to the curriculum, task or environment.</p>
<p>QI-30</p>	<p><u>Quality Indicator:</u> Training for student, family, and staff is an integral part of implementation.</p>	<p><u>Quality Indicator:</u> No change</p>
	<p><u>Intent:</u> Determination of the training needs of the student, staff, and family is based on how the assistive technology will be used in each unique environment. Training and technical assistance are planned and implemented as ongoing processes, based on current and changing needs.</p>	<p><u>Intent Statement:</u> No change</p>

(continued)

Table 4.13 (continued). Revisions to Implementation of AT Services

Item	Original	Revised
QI-31	<p><u>Quality Indicator:</u> Assistive technology implementation is initially based on assessment data and is adjusted based on performance data.</p> <p><u>Intent:</u> Formal and informal assessment data guide initial decision-making and planning for assistive technology implementation. As the plan is carried out, student performance is monitored and implementation is adjusted in a timely manner to support student progress.</p>	<p><u>Quality Indicator:</u> No change</p> <p><u>Intent Statement:</u> No change</p>
QI-32	<p><u>Quality Indicator:</u> Assistive technology implementation includes management and maintenance of equipment and materials.</p> <p><u>Intent:</u> For technology to be useful it is important that equipment management responsibilities are clearly defined and assigned. Though specifics may differ based on the technology, some general areas may include organization of equipment and materials, responsibility for acquisition, repair and replacement, and assurance that equipment is operational.</p>	<p><u>Quality Indicator:</u> No change</p> <p><u>Intent:</u> For technology to be useful it is important that equipment management responsibilities are clearly defined and assigned. Though specifics may differ based on the technology, some general areas may include organization of equipment and materials; responsibility for acquisition, set-up, repair, and replacement in a timely fashion; and assurance that equipment is operational.</p>

Table 4.14. Responses to Quality Indicators for Evaluation of Effectiveness of Assistive Technology Services

Quality Indicator	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
QI-33: Clearly defined responsibilities						
<i>N</i>	1	1	18	100	9	111
%	0.8	0.8	15.0	83.3	7.5	92.5
QI-34: Related to one or more goal						
<i>N</i>	0	2	16	102	13	107
%		1.7	13.3	85.0	10.8	89.2
QI-35: Objective measurement of change						
<i>N</i>	0	1	11	108	8	112
%		0.8	9.2	90.0	6.7	93.3
QI-36: Evaluated across environments						
<i>N</i>	0	1	16	103	7	113
%		0.8	13.3	85.8	5.8	94.2
QI-37: Dynamic, responsive, ongoing process						
<i>N</i>	0	1	11	108	7	113
%		0.8	9.2	90.0	5.8	94.2
QI-38: Analyze response patterns						
<i>N</i>	5	4	22	89	21	99
%	4.2	3.3	18.3	74.2	17.5	82.5
QI-39: Changes in program based on data						
<i>N</i>	1	1	8	110	8	112
%	0.8	0.8	6.7	91.7	6.7	93.3

**Table 4.15. Recommended Revisions to QIAT
Quality Indicators for Evaluation of Effectiveness of Assistive Technology**

Item	Original	Revised
QI-33	<p><u>Quality Indicator:</u> Team members share clearly defined responsibilities to ensure that data are collected, evaluated, and interpreted by capable and credible team members.</p> <p><u>Intent:</u> Each team member is accountable for ensuring that the data collection process determined by the team is implemented. Individual roles in the collection and review of the data are assigned by the team. Data collection, evaluation, and interpretation are led by persons with relevant training and knowledge. It is appropriate for different individual team members to conduct these tasks.</p>	<p><u>Quality Indicator:</u> No change</p> <p><u>Intent Statement:</u> No change</p>
QI-34	<p><u>Quality Indicator:</u> Data are collected on specific student behaviors that have been identified by the team and are related to one or more goal.</p> <p><u>Intent:</u> In order to evaluate the success of the assistive technology use, data is collected on various aspects student performance. The behavior targeted for data collection is related to one or more IEP goal (s) (e.g. ability to accomplish the task, use of the technology, changes in student behavior).</p>	<p><u>Quality Indicator:</u> Data are collected on specific student achievement that has been identified by the team and is related to one or more goals.</p> <p><u>Intent:</u> <u>Intent:</u> In order to evaluate the success of assistive technology use, data are collected on various aspects of student performance and achievement. Targets for data collection include the student’s use of assistive technology to progress toward mastery of relevant IEP and curricular goals and to enhance participation in extracurricular activities at school and in other environments.</p>

(continued)

Table 4.15 (continued). Revisions to Evaluation of Effectiveness of AT

Item	Original	Revised
<p>QI-35</p>	<p><u>Quality Indicator:</u> Evaluation of effectiveness reflects the objective measurement of changes in the student’s performance (e.g. student preferences, productivity, participation, independence, quantity, quality, speed, accuracy, frequency, or spontaneity).</p> <p><u>Intent:</u> Expected changes in student performance are determined by the IEP team. The behavior targeted for data collection must be observable and measurable. Data which captures changes in student behaviors may be either quantitative, qualitative, or both.</p>	<p><u>Quality Indicator:</u> Evaluation of effectiveness includes the quantitative and qualitative measurement of changes in the student’s performance and achievement.</p> <p><u>Intent:</u> Changes targeted for data collection are observable and measurable, so that data are as objective as possible. Changes identified by the IEP team for evaluation may include accomplishment of relevant tasks, how assistive technology is used, student preferences, productivity, participation, independence, quality of work, speed and accuracy of performance, and student satisfaction, among others</p>
<p>QI-36</p>	<p><u>Quality Indicator:</u> Effectiveness is evaluated across environments including during naturally occurring opportunities as well as structured activities.</p> <p><u>Intent:</u> The team determines the environments where the changes in student performance are expected to occur and prioritizes appropriate activities for data collection in those environments.</p>	<p><u>Quality Indicator:</u> Effectiveness is evaluated across environments during naturally occurring and structured activities.</p> <p><u>Intent:</u> Relevant tasks within each environment where the assistive technology is to be used are identified. Data needed and procedures for collecting those data in each environment are determined.</p>

(continued)

Table 4.15 (continued). Revisions to Evaluation of Effectiveness of AT

Item	Original	Revised
<p>QI-37</p>	<p><u>Quality Indicator:</u> Evaluation of effectiveness is a dynamic, responsive, ongoing process that is reviewed periodically.</p> <p><u>Intent:</u> Scheduled data collection occurs over time and changes in response to both expected and unexpected results. Data collection reflects measurement strategies appropriate to individual student’s needs. Team members evaluate and interpret data during periodic progress reviews.</p>	<p><u>Quality Indicator:</u> No Change</p> <p><u>Intent:</u> Scheduled data collection occurs over time and changes in response to both expected and unexpected results. Data collection reflects measurement strategies appropriate to individual student’s needs. Team members evaluate and interpret data during periodic progress reviews.</p>
<p>QI-38</p>	<p><u>Quality Indicator:</u> Data collected provides a means to analyze response patterns and student performance.</p> <p><u>Intent:</u> The team regularly analyzes data to determine student progress and error patterns.</p>	<p><u>Quality Indicator:</u> Data are collected to provide teams with a means for analyzing student achievement and identifying supports and barriers that influence assistive technology use to determine what changes, if any, are needed.</p> <p><u>Intent:</u> Teams regularly analyze data on multiple factors that may influence success or lead to errors in order to guide decision-making. Such factors include not only the student’s understanding of expected tasks and ability to use assistive technology but also student preferences, intervention strategies, training, and opportunities to gain proficiency.</p>

(continued)

Table 4.15 (continued). Revisions to Evaluation of Effectiveness of AT

Item	Item	Item
<p>QI-39</p>	<p><u>Quality Indicator:</u> The team makes changes in the student’s educational program based on their interpretation of the collected data</p> <p><u>Intent:</u> During the process of reviewing data, the team determines whether program changes/modifications need to be made in the environment, tasks, and tools. The team acts on these decisions and makes needed changes.</p>	<p><u>Quality Indicator:</u> Changes are made in the student’s assistive technology services and educational program when evaluation data indicate that such changes are needed to improve student achievement.</p> <p><u>Intent:</u> During the process of reviewing evaluation data, the team decides whether changes or modifications need to be made in the assistive technology, expected tasks, or factors within the environment. The team acts on those decisions and supports their implementation.</p>

Table 4.16. Recommended Revisions to the Order of Quality Indicators for Evaluation of Effectiveness of Assistive Technology

- QI-33** Team members share **clearly defined responsibilities** to ensure that data are collected, evaluated, and interpreted by capable and credible team members.
- QI-34** Data are collected on specific student achievement that has been identified by the team and is **related to one or more goals**.
- QI-35** Evaluation of effectiveness includes the **quantitative and qualitative measurement of changes** in the student's performance and achievement.
- QI-36** Effectiveness is evaluated **across environments** during naturally occurring and structured activities.
- QI-37** Data are collected that provide teams with a means for **analyzing student achievement and identifying supports and barriers** that influence assistive technology use to determine what changes, if any, are needed.
- QI-38** **Changes are made** in the student's assistive technology services and educational program when evaluation data indicate that such changes are needed to improve student achievement.
- QI-39** Evaluation of effectiveness is a dynamic, responsive, **ongoing process** that is reviewed periodically.
-

**Table 4.17. Responses to Usefulness of
Quality Indicator for Assistive Technology Services (QIAT)
(N=120)**

	Need for Quality Indicators			
	Usefulness Unknown	Not Useful	Somewhat Useful	Very Useful
<i>N</i>	1	0	25	94
<i>%</i>	0.8		20.8	78.3

Note: percentages don't add up due to rounding errors.

Chapter V

Conclusions and Implications

The purpose of this chapter is to report the conclusions drawn from this investigation and the implications of the findings. Prior to addressing those issues, limitations of the investigation will be described. The second section summarizes the results of the investigation. The third and fourth sections describe the implications of this research for practice and for future development of QIAT. The final section suggests implications for future research related to this investigation.

Limitations of the Investigation

There are several potential limitations of this investigation. First, the survey instruments—consisting of a print version and a Web-based electronic version—were developed by the investigator. No formal studies were performed to determine the reliability and validity of the instruments. In lieu of such data, an expert review and a pilot study were conducted to address the face validity and usability of the instrument. Following the initial development of the print version of the instrument, an expert review by members of the researcher's doctoral committee, University of Kentucky faculty and staff with expertise in assistive technology, and the QIAT Consortium was conducted and several revisions were made based on the results of the review. Following the expert review, a pilot study was conducted with four doctoral students—two of whom had assistive technology as a focus of their programs—in the Special Education and Rehabilitation Counseling Department at the University of Kentucky and additional revisions were made. When the judgments of the reviewers and the participants in the pilot study satisfied the researcher that the survey instrument had face validity and sufficient usability, the final print version was developed and used as a model for the development of the electronic version.

A second limitation is that the data were the subjective perceptions of the five groups of subjects who served as survey respondents. As such, the scope of the evaluation was confined to the determination of social and content validity of the quality indicators, based on what was judged to be necessary, important, and useful by participants with knowledge and expertise in assistive technology. The ultimate evidence of quality assistive technology services is the educational success of students who are using assistive technology. This study did

not address the implementation of QIAT or make any attempt to establish or measure a relationship between QIAT and student success.

A third limitation is that many of the people included in the sample were potential candidates for inclusion in more than one subgroup. Because of this, it was not possible to ensure that their replies to the survey reflected only the perspective of the subgroup to which they were assigned.

A fourth limitation, relates to the lack of statistical data to determine whether significant differences occurred in responses across the five groups of subjects. The initial intent was to perform Chi-square analyses to determine whether statistical differences existed across groups. After the data were tabulated, however, a number of empty cells were found in the Chi-square contingency tables. Consequently, the assumptions for the use of Chi-square could not be met making it inappropriate to use that statistical analysis. Instead, similarities and differences across groups were determined through visual inspection only.

The final limitation is the possibility that the sample of participants could be potentially biased in two ways. First, when identifying the sample, there was no attempt made to differentiate potential participants who were already aware of, or had used, QIAT from those who had not. Analysis of the data indicated that some were familiar with QIAT; but it was not possible to identify the depth of their familiarity or the nature of use of QIAT by all respondents. Consequently, the investigator was not able to differentiate or compare the responses between those who were aware of QIAT and those who were not.

Second, although the participants were purposely selected for their leadership in assistive technology within each of the five groups for whom QIAT is intended, the inability to accurately identify the total population of leaders in assistive technology in all groups made it impossible to draw a composite profile of that population through random sampling. This limitation opens the results of this study to sampling bias and requires caution in generalizing the results obtained from the sample to the entire population of assistive technology leaders with any level of certainty or scientific precision. To compensate for this potential bias, however, an attempt was made for the sample to reflect the diversity of interest, experience, and preparation found within the population of people with interests and responsibilities in assistive technology. In order to increase the probability that data gathered were relevant and im-

portant, the participants in this study included individuals with long experience and high levels of broad expertise in assistive technology, as recommended by Gresham and Lopez (1996), Lloyd and Heubesch (1996), and Wolf (1978). In order to enhance generalizability of the data to the broader population of all who may have assistive technology leadership responsibilities in the areas potentially impacted by QIAT, participants also included people in leadership positions with fewer years of experience and more focused expertise, as recommended by Szymanski, et al. (1993).

Summary of Results and Conclusions

Given the limitations described above, this section includes a summary of the conclusions that were drawn from this investigation. Following a brief overview, the results for each research question will be discussed.

Based on the detailed results of this investigation that were presented and discussed in Chapter 4, this investigation suggests that quality indicators are needed to guide the development and delivery of assistive technology services, the thirty-nine quality indicators contained in QIAT are important, and that QIAT is, or would be, useful to people with varied interests and responsibilities in assistive technology.

The quantitative data gathered in this investigation were analyzed as a whole because the ratings by participants in each of the five groups surveyed, as shown in [Appendix E](#), demonstrated few meaningful differences between groups. Based solely on the quantitative data gathered in the investigation, it would have been possible to reach the conclusion that every item included in QIAT was not only important, but also sufficiently clear to warrant recommending that no changes be made. However, the qualitative data included in the comments made by participants across groups showed that there were differences in the ways the items in QIAT were perceived not only by individual participants, but also by participants with differing assistive technology interests and responsibilities. In order to support a more inclusive understanding of QIAT, changes in the wording and the order of many of the items in QIAT were made, based upon the qualitative data. A document that includes all of the changes to QIAT that were made as a result of the qualitative data can be found in [Appendix G](#). Following is a summary of the conclusions for each of the research questions addressed in the investigation.

Research Question 1: What is the perceived need for assistive technology quality indicators?

Analysis of the quantitative rankings indicated that greater than 99% of participants in all groups represented in this study believed there was a need for quality indicators to guide the development and delivery of assistive technology service at all levels of educational organizations. Details about how participants from different groups viewed the need for some measure of quality to guide the development and delivery of assistive technology services to be needed by people with assistive technology interests and responsibilities similar to their own are reflected in the comments that were included in Chapter Four.

Research Question 2: How important is each indicator included in Quality Indicators for Assistive Technology Services?

Analysis of the data gathered in this investigation indicated that every quality indicator contained in QIAT was considered to be important by greater than 92% of the participants. Very few differences in perceptions of importance were found between groups; however, in several instances the comments made by participants in some groups made it clear to the researcher that participants in some groups believed that the content of some items pertained more to a group other than their own. Other participants occasionally provided comments which led the investigator to decide that revisions needed to be made to accommodate specific respondent concerns. Such comments contributed to the researcher's revisions of some items so that, while maintaining original main ideas of QIAT, they would be more responsive to the opinions and expressed needs of specific constituencies.

Research Question 3: How clear is the intent statement for each indicator included in Quality Indicators for Assistive Technology Services?

Every intent statement included in QIAT was considered to be clear by greater than 82% of the participants. However, the clarity of the intent statement was the area within the survey that contained the most variance, both within the entire sample and between the groups. Analysis of the qualitative data suggested that the question of clarity of each intent statement was much more broadly interpreted by the participants than the question of importance of each quality indicator. As reported in Chapter 4, the data suggest that individual interpretations of clarity combined with the interests, responsibilities, and experience of the par-

ticipants in the investigation greatly influenced their responses to this question. In at least one instance, each time the intent statement was ranked as *unclear* the comment that followed indicated that although the intent was clear, the content of the item being reviewed was not currently happening in the field. Further indication of the broad interpretation of this question was demonstrated when participants ranked the intent statement as *clear* and followed the ranking with comments that indicated to the researcher that what the participant believed to be clear was not closely aligned to the QIAT Consortium's main idea or intent of the item.

Because of the apparent variance in the interpretation of this question, the rankings of clarity were considered most informative when followed by comments that suggested the reason for the ranking. The comments were given greater weight in the formulation for the recommendations for revisions that the actual rankings for this question.

Research Question 4: What additions or modifications should be made to the Quality Indicators for Assistive Technology Services?

Since the beginning of the development of QIAT, there has been a conscious effort to ensure that the information contained in QIAT would be not only legally correct, but also meaningful and useful regardless of geographic location, model of service delivery, or perspective from which users view assistive technology. Analysis of the quantitative and qualitative data gathered during this investigation and reported in detail in Chapter 4, suggest that the individual quality indicators and intent statements contained in QIAT did not, as written, convey the same information to all participants. Those data indicated that some revisions in the wording of the items contained in QIAT were needed to increase the common understanding of the quality indicators and intent statements for all users of the document. Thus, although the quantitative data clearly indicated the importance of each item to participants in each group, the qualitative data provided by participants in each group were extremely useful to the researcher and provided much of the basis for the formulation of the suggested changes to QIAT. Based on those data, the following changes were recommended:

- The words “Assistive Technology” were added to the heading of each area;
- The area of Administrative Support for Assistive Technology Services was moved from the beginning of the document to the end so that more student-specific areas were presented prior to the presentation of systemic areas;

- The quality indicators within three areas—Consideration of Assistive Technology Needs, Including Assistive Technology in the IEP, and Evaluation of the Effectiveness of Assistive Technology—were reordered to more closely align to the sequence in which they would be expected to occur in assistive technology service delivery;
- One quality indicator in the area of Consideration of Assistive Technology Needs was added;
- The wording of 28 of the 39 quality indicators was changed in an attempt to increase clarity and common understanding;
- The wording of 35 of the 39 intent statements was changed in an attempt to increase clarity and common understanding;
- A number of training materials and products aligned to QIAT to aid in the development and delivery of effective assistive technology services were identified for future development.

In the course of making the changes that emerged from analysis of the data, additional dimensions were added to QI-2, QI-4, QI-19, and QI-21. While all other items in the research can be considered valid, the substantive changes in these four items suggest a need for revalidation to determine the level to which they are considered important in their revised form. These items are marked with an asterisk in the tables in Chapter 4 and in the revised document located in Appendix G where all changes can be viewed in their entirety.

Research Question 5: What is the perceived usefulness of the specific information contained in Quality Indicators for Assistive Technology Services?

Analysis of the quantitative rankings indicated that greater than 99% of participants in the entire sample surveyed in this study believed that Quality Indicators for Assistive Technology Services were—or would be—useful to people with assistive technology interests and responsibilities similar to their own. Details about how participants from different groups viewed the usefulness of QIAT to people with assistive technology interests and responsibilities similar to their own are reflected in the comments included in Chapter Four.

Finally, comments on this question included remarks on the importance of the work that has been done thus far by the QIAT Consortium and urged the continuation of that work. Two primary activities for continuation of the work were suggested: (a) revisions that would

result in the development and publication of a second edition of QIAT, and (b) identification or development of training materials, and tools that support the implementation of QIAT and are specifically focused on the needs and interests of the particular groups for whom they are intended.

Implications for Practice

The primary purpose of QIAT is to support development, provision, and evaluation of assistive technology services for students with disabilities, regardless of where the services are provided or the specific model used to support service provision. Further, QIAT supports the idea that the services should address not only the needs of students, but also the needs of family members and school personnel who work with students who require assistive technology devices and services to receive a free appropriate public education.

The level of social validity and usefulness established by this investigation provides some assurance to potential users that QIAT is an accurate guide that includes important information. Given that level of assurance, it can be concluded that QIAT could be used with confidence by each of the groups for whom QIAT was intended—consumers of assistive technology and their families, district and regional educational personnel involved with assistive technology service provision, state and national assistive technology service providers, assistive technology faculty at institutions of higher education, and individuals involved in the development, implementation and monitoring of assistive technology policy. Following are specific implications for each of the groups represented in the sample.

Consumers and family members. QIAT is a useful way for consumers and families to gain an understanding of the purpose of assistive technology in educational settings and the importance of their roles in the development of appropriate assistive technology services. QIAT can be a guide that provides information, knowledge, and the opportunity to identify and develop the skills needed to be active participants in all phases of assistive technology processes, from identification of need through selection, acquisition, and use of assistive technology. QIAT can also serve as a means for consumers and family members to evaluate the assistive technology services in which they are involved to determine what changes, if any, are needed.

K-12 Educational personnel. QIAT provides a means for educational personnel at district, regional, state, and national levels to understand and explain to others that the primary purpose of assistive technology in educational settings is to foster the educational participation and achievement of students with disabilities. QIAT also helps educational personnel at all organizational levels understand the multiple factors that influence the provision of quality assistive technology services and the various roles and responsibilities that must be fulfilled to provide high-quality assistive technology services on a consistent basis. Further, QIAT provides educational personnel with a framework for evaluating the current status of their own assistive technology programs. The results of such an evaluation can be used to identify areas of strength upon which to build and areas that are in need of improvement. Using QIAT in this way provides a means of planning for, and supporting, continuous improvement of assistive technology services at all levels of educational organizations.

Higher education faculty. QIAT provides a useful guide for higher educational faculty to use in the development of programs that prepare personnel to participate in the development, delivery, and evaluation of assistive technology services in educational settings. QIAT is also a useful resource in teaching others about assistive technology and how it relates to other programs of instruction. It is a valuable tool for evaluating programs and provides a summary of important issues in assistive technology for use in presentations.

Policy-makers and monitors. QIAT provides a body of information about assistive technology services in schools that can be used to provide a base of understanding upon which the development of judicious, effective policy can be made. QIAT provides people involved in policy-making and monitoring with a means for understanding the impact of policy on the many variables involved in development, maintenance, and expansion of quality assistive technology services. Further, QIAT could be used by policy monitors to determine the level to which current policies are being implemented and whether they are having the intended impact on the educational achievement of students with disabilities.

Implications for Future Development

Throughout this investigation, suggestions were made for the development of training materials and tools that could support the implementation and use of QIAT. This section

briefly discusses actions being led by the QIAT Consortium that are currently in progress and suggests additional actions based on this research.

Since the initial development of QIAT, the QIAT Consortium has been focused on collecting, identifying, or developing materials and supports that lead to putting QIAT in action. Some of the developments that have taken place, or are currently in progress, include:

- Quality indicators, intent statements, and common errors have been identified and introduced for two new areas—Professional Development and Training in Assistive Technology, and Assistive Technology Transition;
- The QIAT Matrices have been developed as a self-evaluation tool. For each quality indicators, five descriptive variations ranging from unacceptable to exemplary are included. Education agencies use the matrices to determine where their current services fall within this range and identify areas of strength and areas in need of improvement. They then prioritize areas for improvement and develop appropriate action plan. The QIAT Matrices are available for downloading on the QIAT Web site at <http://www.qiat.org>;
- The QIAT Listserv provides a forum for people interested in assistive technology to share their experiences, knowledge and skills. The QIAT List provides a means for almost immediate contact with others and has been called “the best just-in-time professional development in assistive technology available anywhere” by one of its participants. Currently the QIAT Listserv has over 900 participants across the United States and in other countries. Information about QIAT List participation is available on the Listserv area on the QIAT Web site;
- QIAT Summits engage participants in the identification of currently existing materials and tools and products for future development that are aligned to one or more of the quality indicators and support the implementation of quality assistive technology services; and,
- Numerous materials have been identified or developed and are posted in the Resources area of the QIAT Web site.

The primary products suggested for development at the most recent QIAT Summit parallel those suggested by participants in this investigation and recommended by the researcher. The suggestions are the same across all areas of QIAT. They include:

- A variety of detailed examples or scenarios that provide an illustration of how each of the quality indicators might appear in practice in different educational environments;
- Tools that address the issues in each area and provide specific steps that can be taken to move toward higher quality service provision in that area; and
- Specific examples of data that can be collected and analyzed at each stage of assistive technology service delivery and examples of methods for collecting those data.

Implications for Future Research

Through the conduct of this research, the investigator identified the need for additional research studies to extend the understanding of the importance, utility, and validity of QIAT. First, the importance of conducting additional research similar to this study will be discussed. Additional research topics will then be suggested.

Findings presented and discussed in Chapter Four were based on what a sample of leaders with varied interests and responsibilities in assistive technology perceived to be necessary, important, and useful. In order to gain the most meaningful data, it was necessary to select a purposive sample of individuals who not only had knowledge and expertise in assistive technology, but also had a strong connection to the needs and concerns of the population they represented. The qualitative data presented and discussed in Chapter Four demonstrate that strong connection and, thus, provide a means for inferring information about the perceptions of others with similar experience and expertise (Gay, 1996). Thus, there is reason to infer that QIAT would have a high level of content validity and utility for other assistive technology leaders. However, additional quantitative and qualitative research is needed to determine whether this is true. When conducting investigations similar to this one, it may be of interest to researchers to identify a larger sample of leadership personnel and then randomly select respondents from that group. It may also be of interest to compare responses of those who were previously familiar with QIAT with those of people who were not familiar with it at the time of the investigation.

Researchers are urged to continue to seek the involvement of similar groups as they do additional research to strengthen what has been learned in this study. Questions that might be addressed in such studies include:

1. Does QIAT, in its revised form, communicate intended information about assistive technology services to individuals with disabilities, their families, school personnel, higher education faculty, and policy-makers?
2. What are the barriers to the implementation of assistive technology services aligned to QIAT in educational environments? What resources are required to overcome those barriers?
3. In what ways can the use of QIAT be promoted at all levels of educational organizations?
4. What additional changes are recommended in QIAT?

The limitations of this investigation, the feedback from participants in this investigation, and the investigator's experiences in the development and dissemination of QIAT indicate the need for future research to strengthen and deepen the validity and usefulness of QIAT. Although the perceptions of participants included in the purposive sample of leaders who had and were willing to share the information sought in this investigation indicated that QIAT was needed, important, and useful, it is suggested that further validation be determined by research in which empirical studies examine the following questions:

1. Is QIAT actually being used by the groups for which it is intended?
2. How does the integration of QIAT into preservice and inservice professional preparation programs impact on individual and professional practices of assistive technology decision-making and service provision?
3. How does the use of QIAT as a self-evaluation and planning guide impact upon the capacity of IEP teams and school district personnel to develop and provide assistive technology services?
4. How does awareness of QIAT by individuals with disabilities and their family members impact upon their participation in the assistive technology decision-making and service provision?

5. Does the use of QIAT as a guide for developing and delivering assistive technology services result in positive changes in the educational achievement of students with disabilities?

APPENDIX A

**Quality Indicators for Assistive Technology Services
(QIAT)
as published in 2001**

QUALITY INDICATORS FOR ASSISTIVE TECHNOLOGY SERVICES

The QIAT Consortium

The consideration of assistive technology devices and services is required during the development of every Individualized Educational Program (IEP) and every Individual Family Service Plan (IFSP) for children from birth to school age. The Individuals with Disabilities Education Act of 1997 (IDEA '97) requires that each team which plans for the education of a child with a disability document any assistive technology devices and/or services the child may need. Despite this requirement, there has been no agreed upon description of high quality assistive technology services by which schools can measure their compliance.

Since the summer of 1998, the Quality Indicators for Assistive Technology (QIAT) Consortium has focused its efforts on defining a set of descriptors that could serve as over-arching guidelines for quality assistive technology services. The Consortium has attempted to develop descriptors that are applicable regardless of service delivery models. It is the belief of the Consortium that these descriptors can be used to guide:

1. school districts in the development and provision of quality assistive technology services which are aligned to federal, state and local mandates;
2. assistive technology service providers in the evaluation and improvement of their services;
3. consumers of assistive technology services in the selection of adequate assistive technology services;
4. university faculty and professional development providers in the delivery of programs that develop knowledge and skills needed to offer quality assistive technology services;
5. leaders in the development of regulations and policies related to the use of assistive technology in education.

When reviewing or using the Quality Indicators for Assistive Technology, it is important to be aware of some basic assumptions that pertain to all areas of QIAT. First, it is essential that ALL assistive technology services developed and delivered by states or districts are legally correct according to the mandates and expectations of federal and state laws and are aligned to district policies. Second, assistive technology efforts, at all stages, involves on-going collaborative work by teams which include families and caregivers, school personnel, and other needed individuals and service agencies. Third multidisciplinary team members involved in assistive technology processes are responsible for following the code of ethics for their specific profession.

Note: IDEA '97 requires that assistive technology devices and services be provided for all children with disabilities who need them. This applies to children from birth to twenty-one years of age. In the following document, when the term IEP is used, the reader can assume that the indicator also applies to IFSPs unless otherwise indicated.

Quality Indicators for Administrative Support

This area defines the critical areas of administrative support and leadership for developing and delivering assistive technology services. It involves the development of policies, procedures, and other supports necessary to sustain effective assistive technology programs.

The education agency has written procedural guidelines that ensure equitable access to assistive technology devices and services for students with disabilities, if required for FAPE.

Intent: The education agency has clear written procedural guidelines that provide equal access to assistive technology devices and services for all students. Access to AT is the same for the student regardless of abilities, economic status or geographic location. All district personnel are familiar with the procedural guidelines.

6. The education agency has clearly defined and broadly disseminated policies and procedures for providing effective assistive technology devices and services.

Intent: District personnel in special education and general education are familiar with the policies and procedures in both special education as well as general education. The procedures are readily available at each campus and all school personnel know how to access the procedures.

7. The education agency has written descriptions of job requirements, which include knowledge, skills, and responsibilities for staff members who provide assistive technology services.

Intent: The education agency has clear written statements of job requirements that address the necessary AT knowledge, skills and responsibilities for all staff members. This includes all personnel from the classroom through central office. This could be reflected in a position description, assignment of duty statement or some other written description.

8. The education agency employs a range of personnel with competencies needed to provide quality assistive technology services within their areas of primary responsibility.

Intent: The agency employs staff members from the classroom through the central office who have knowledge and skills of AT commensurate with job requirements. Though classroom teachers, supervisors and purchasing agents may need different knowledge and skills related to assistive technology, all must be knowledgeable for the system to work well.

9. The education agency includes assistive technology in the technology planning and budgeting process.

Intent: Historically, the AT needs of the agency have either been separate or omitted. A comprehensive technology plan provides for the technology needs of all students in both general education as well as special education.

10. The education agency provides continuous learning opportunities about assistive technology devices, strategies and resources for staff, family and students.

Intent: The training addresses the needs of the student, the family, and all of the staff involved with the student. Ongoing training and technical assistance opportunities are readily accessible to all members of the IEP team. The training and technical assistance includes training on AT devices, strategies and resources to support IEP goals and objectives.

11. The education agency uses a systematic procedure to evaluate the components of assistive technology services to ensure accountability for student progress.

Intent: There is a clear systematic procedure with which all administrators are familiar and use regularly. This procedure is used consistently across the agency at both central office and the building level. The components of this process include budgeting, planning, delivery and evaluation of AT services.

COMMON ERRORS:

1. If policies and guidelines are developed, they are not known widely enough to assure equitable application by all IEP teams.
2. It is not clearly understood that the primary purpose of assistive technology in school settings is to support the implementation of the IEP for the provision of a free appropriate public education (FAPE).
3. Personnel have been appointed to head assistive technology efforts, but resources to support those efforts have not been allocated. (Time, a budget for devices, professional development, etc.)
4. Assistive technology leadership personnel try to or are expected to do all of the assistive technology work and fail to meet expectations.
5. Assistive technology services are established but their effectiveness is never evaluated.

Quality Indicators for Consideration of Assistive Technology Needs

Consideration of the need for assistive technology devices and services is an integral part of the educational process identified by IDEA '97 for referral, evaluation, and IEP development. Although assistive technology is considered at all stages of the process, the Consideration Quality Indicators are specific to the consideration of assistive technology in the development of the IEP as mandated by IDEA '97. In most instances, the Quality Indicators are also appropriate for the consideration of assistive technology for students who qualify for services under other legislation (e.g. 504, ADA).

- 1. Assistive technology devices and services are considered for all students with disabilities regardless of type or severity of disability.**

Intent: IDEA '97 is based on a child-centered process. Decisions regarding the need for assistive technology are determined by the unique educational needs of each individual student. Services cannot be determined based on categories.

- 2. The IEP team has the knowledge and skills to make informed assistive technology decisions.**

Intent: The IEP team members collectively use their skills to recommend assistive technology devices and services needed to remove barriers to student performance. When the assistive technology needs are beyond the knowledge and scope of the IEP team, additional support from other resources is sought.

- 3. The IEP team uses a collaborative decision making process based on data about the student environment and tasks to determine assistive technology needs.**

Intent: Although IDEA requires that the AT needs of students be considered during the development of the IEP, it does not specify a process. The IEP team uses a state or district determined process to make informed decisions regarding the need for assistive technology. The process is communicated and used consistently across the district.

- 4. A continuum of assistive technology devices and services is explored.**

Intent: The IEP team considers a range of tools and strategies, including no tech, low tech and high tech to meet the educational needs of the student. Consideration is not limited to the devices and services currently available within the district.

5. Decisions regarding the need for assistive technology devices and services are made based on access to the curriculum and the student's IEP goals and objectives.

Intent: After the IEP team determines the curricular tasks the student needs to complete and develops the goals and objectives, the team considers whether assistive technology is required to accomplish those tasks.

6. Decisions regarding the need for assistive technology devices and services and supporting data are documented.

Intent: The IEP team determines whether or not assistive technology devices and/or services are needed. The IEP team uses something more than a check box to document the basis of the decision.

COMMON ERRORS:

1. Assistive technology is considered for students with severe disabilities only.
2. No one on the IEP team is knowledgeable regarding assistive technology.
3. Team does not use a consistent process based on data about the student, environment and tasks to make decisions.
4. Consideration of assistive technology is limited to those items that are familiar to team members or are available in the district.
5. Team members fail to consider access to the curriculum and IEP goals in determining if assistive technology is required in order for the student to receive FAPE.
6. If assistive technology is not needed, team fails to document the basis of its decisions.

Quality Indicators for Assessment of Assistive Technology Needs

Quality Indicators for Assessment of Assistive Technology Needs is a process conducted by a team, used to identify tools and strategies to address a student's specific need(s). The issues that lead to an assistive technology assessment may be very simple and quickly answered or more complex and challenging. Assessment takes place when these issues are beyond the scope of the problem solving that occurs as a part of normal service delivery.

1. Assistive technology assessment procedures are clearly defined and consistently used.

Intent: Throughout the educational agency, personnel are well informed and trained about assessment procedures and how to initiate them. There is consistency throughout the agency in the conducting of assistive technology assessments.

2. Assistive technology assessments are conducted by a multidisciplinary team which actively involves the student and family or caregivers.

Intent: The multidisciplinary team conducting an assistive technology assessment is comprised of people who collectively have knowledge about the abilities and needs of the student, the demands of the customary environments, the educational objectives, and assistive technology. Various team members bring different information and strengths to the assessment process.

3. Assistive technology assessments are conducted in the student's customary environments.

Intent: The assessment process takes place in customary environments (e.g., classroom, lunchroom, home, playground, etc.) because of the varied characteristics and demands in those environments. In each environment, district personnel, the student and family or caregivers are involved in gathering specific data and relevant information.

4. Assistive technology assessments, including needed trials, are completed within reasonable time lines.

Intent: Assessments are initiated in a timely fashion and completed within a time line that is reasonable as determined by the IEP team. The timeline complies with applicable state and agency requirements.

5. **Recommendations from assistive technology assessments are based on data about the student, environments and tasks.**

Intent: The assessment includes information about the student's needs and abilities, demands of the environments, and educational tasks and objectives. It may include trial use of the technology in the environments in which it will be used.

6. **The assessment provides the IEP team with documented recommendations about assistive technology devices and services.**

Intent: The recommendations from the assessment are clear and concise so that the IEP team can use them in decision-making and program development.

7. **Assistive technology needs are reassessed by request or as needed based on changes in the student, environments and/or tasks.**

Intent: An assistive technology assessment is available any time it is needed due to such changes or when it is requested by the parent or other members of the IEP team.

COMMON ERRORS

1. Procedures for conducting assistive technology assessment are not defined, or are not customized to meet the student's needs.
2. A team approach to assessment is not utilized.
3. Individuals participating in an assessment do not have the skills necessary to conduct the assessment, and do not seek additional help.
4. Team members do not have adequate time to conduct assessment processes, including necessary trials with AT.
5. Communication between team members is not clear.
6. The student is not involved in the assessment process.
7. When the assessment is conducted by any team other than the student's IEP team, the needs of the student or expectations for the assessment are not communicated.

Quality Indicators for Documentation in the IEP

The Individuals with Disabilities education Act of 1997 (IDEA '97) requires that the IEP team consider assistive technology needs in the development of every Individualized Education Program (IEP). Once the IEP team has reviewed assessment results and determined that assistive technology is needed for provision of FAPE, it is important that the IEP document reflects the team's determination in as clear a fashion as possible. The Quality Indicators for Assistive Technology in the IEP help the team to describe the role of assistive technology in the child's educational program.

1. **The education agency has guidelines for documenting assistive technology needs in the IEP and everyone on the IEP team is aware of them.**

Intent: Education agencies give instructions to IEP teams as to how IEPs should be written. These instructions include guidance about documentation of assistive technology needs. Districts give direction to IEP teams about how to document assistive technology as a related service, supplementary aid or service, goal, objective etc.

2. **Assistive technology is included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used.**

Intent: IEPs are written in such a manner that everyone who attended the IEP meeting and other people who might need to use the information to implement the plan understand what is to be done. IEPs are clearly written with as little "jargon" as possible. They give a clear picture of the devices and services which the IEP team determined were necessary.

3. **Assistive technology is used as a tool to support achievement of IEP goals and objectives as well as participation and progress in the general curriculum.**

Intent: There should be a clear relationship between assistive technology devices and services included in an IEP and the goals and objectives developed by the team. Most goals and objectives should be developed before decisions about assistive technology use are made.

4. **IEP content regarding assistive technology use is written in language that describes measurable and observable outcomes.**

Intent: At the point of periodic review, the IEP is used to measure whether the district met its commitments and the whether the educational goals set for the child were appropriate. Content which describes measurable and observable outcomes for assistive technology allows the team to review the success of the plan.

5. All services needed to implement assistive technology use are documented in the IEP.

Intent: IDEA lists a variety of services (i.e. evaluating, customizing, maintaining, coordinating services, training for the child and family, technical assistance for professionals) which must be provided to support the child's use of an assistive technology device. IEPs that include assistive technology devices often fail because inadequate services are provided. It is important that the IEP includes services as well as devices.

COMMON ERRORS:

1. IEP teams do not know how to include assistive technology in IEPs.
2. IEPs including assistive technology use a "formula" approach to documentation. All IEPs are developed in similar fashion and the unique needs of the child are not addressed.
3. Assistive technology is included in the IEP, but the relationship to goals and objectives is unclear.
4. Assistive technology devices are included in the IEP, but no assistive technology services support the use.
5. Assistive technology expected results are not measurable or observable.

Quality Indicators for Assistive Technology Implementation

Assistive technology implementation pertains to the ways that assistive technology devices and services, as included in the IEP (including goals/objectives, related services, supplementary aids and services and accommodations or modifications) are delivered and integrated into the student's educational program. Assistive technology implementation involves people working together to support the student using assistive technology to accomplish expected tasks necessary for active participation in customary educational environments.

1. Assistive technology implementation proceeds according to a collaboratively developed plan.

Intent: Following IEP development, all those involved in implementation work together to develop a written action plan that provides detailed information about how the assistive technology will be used in specific educational settings, what will be done and who will do it.

2. Assistive technology is integrated into the curriculum and daily activities of the student.

Intent: Assistive Technology is used when and where needed to facilitate the student's access to the curriculum, and active participation in educational activities and routines.

3. Team members in all of the child's environments share responsibility for implementation of the plan.

Intent: Persons working with the student in each environment know what to do to support the student using assistive technology.

4. The student uses multiple strategies to accomplish tasks and the use of assistive technology may be included in those strategies.

Intent: Assistive Technology tools are used when needed to remove barriers to participation and/or performance. Alternate strategies may include use of the student's natural abilities, other supports, or modifications to the curriculum, task or environment. At times these alternate strategies may be more efficient than the use of assistive technology.

5. Training for student, family and staff is an integral part of implementation.

Intent: Determination the training needs of the student, staff and family based on how the assistive technology will be used in each unique environment. Training and technical assistance are planned and implemented as ongoing processes based on current and changing needs.

6. Assistive technology implementation is initially based on assessment data and is adjusted based on performance data.

Intent: Formal and informal assessment data guide initial decision-making and planning for Assistive Technology implementation. As the plan is carried out, student performance is monitored and implementation is adjusted in a timely manner to support student progress.

7. **Assistive technology implementation includes management and maintenance of equipment and materials.**

Intent: For technology to be useful it is important that equipment management responsibilities are clearly defined and assigned. Though specifics may differ based on the technology, some general areas may include organization of equipment and materials, responsibility for acquisition, repair and replacement, and assurance that equipment is operational.

COMMON ERRORS

1. Implementation is expected to be smooth and effective without addressing specific components in a plan. Team members assume that everyone understands what needs to happen and knows what to do.
2. Plans for implementation are created and carried out by one IEP team member.
3. The team focuses on device acquisition and does not discuss implementation.
4. An implementation plan is developed that is incompatible with the instructional environments.
5. No one takes responsibility for the care and maintenance of assistive technology devices and so they are not available or in working order when needed.
6. Contingency plans for dealing with broken or lost devices are not made in advance.

Quality Indicators for Evaluation of Effectiveness

This area addresses the evaluation of the effectiveness of the assistive technology devices and services be provided. It includes data collection and documentation to monitor changes in student performance resulting from the implementation. Student performance is reviewed in order to identify if, when, or where modifications and revisions to the implementation are needed.

- 1. Team members share clearly defined responsibilities to ensure that data are collected, evaluated, and interpreted by capable and credible team members.**

Intent: Each team member is accountable for ensuring that the data collection process determined by the team is implemented. Individual roles in the collection and review of the data are assigned by the team. Data collection, evaluation, and interpretation are lead by persons with relevant training and knowledge. It can be appropriate for different individual team members to conduct these tasks.

- 2. Data are collected on specific student behaviors that have been identified by the team and are related to one or more goal.**

Intent: In order to evaluate the success of the assistive technology use, data is collected on various aspects student performance. The behavior targeted for data collection is related to one or more IEP goal (s) (e.g. ability to accomplish the task, use of the technology, changes in student behavior).

- 3. Evaluation of effectiveness reflects the objective measurement of changes in the student's performance (e.g. student preferences, productivity, participation, independence, quantity, quality, speed, accuracy, frequency, or spontaneity).**

Intent: Expected changes in student performance are determined by the IEP team. The behavior targeted for data collection must be observable and measurable. Data which captures changes in student behaviors may be either quantitative, qualitative, or both.

- 4. Effectiveness is evaluated across environments including during naturally occurring opportunities as well as structured activities.**

Intent: The team determines the environments where the changes in student performance are expected to occur and prioritizes appropriate activities for data collection in those environments.

5. **Evaluation of effectiveness is a dynamic, responsive, ongoing process that is reviewed periodically.**

Intent: Scheduled data collection occurs over time and changes in response to both expected and unexpected results. Data collection reflects measurement strategies appropriate to individual student's needs. Team members evaluate and interpret data during periodic progress reviews.

6. **Data collected provides a means to analyze response patterns and student performance.**

Intent: The team regularly analyzes data to determine student progress and error patterns.

7. **The team makes changes in the student's educational program based on data.**

Intent: During the process of reviewing data, the team determines whether program changes/modifications need to be made in the environment, tasks, and tools. The team acts on these decisions and makes needed changes.

COMMON ERRORS:

1. An observable, measurable student behavior is not specified as a target for change.
2. Team members do not share responsibility for evaluation of effectiveness.
3. An environmentally appropriate means of data collection and strategies has not been identified.
4. A schedule of program review for possible modification is not determined before implementation begins.

APPENDIX B
The QIAT Consortium

Table B1: The QIAT Consortium

Name	Affiliations	Perspectives^a
Merv Blunt	Supervisor for Instruction Missouri State School for Severely Handicapped Jefferson City, MO	1,2,8,9
Gayl Bowser	Coordinator, Oregon Technology Access Program, Roseburg, OR	2,7,8
Diana Carl	Director of Assistive Technology Services Region IV ESC, Houston, TX	4,6,7,8
Sharon Davis	Speech Therapy Supervisor and Assistive Technology Consultant Dewitt-Lavaca Special Education Coop Cuero, TX	3,6,8,12
Cheryl Deterding	Assistant Professor Occupational Therapy Education University of Kansas Medical Center Kansas City, KS	5,6,8,9
Teresa Foss	Assistive Technology Team – TEACH Shawnee Mission Schools, Overland Park, KS	2,8
Terry Hamman	Central Education Manager AlphaSmart, Inc. Houston, TX	2,8,11
Kim Hartsell	Director Georgia Project for Assistive Technology Atlanta, GA	3,7,8

(table continued)

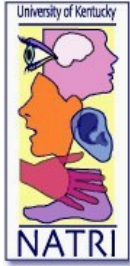
Table A1 (continued)

Name	<u>Affiliations</u>	Perspectives ^a
Jane Korsten	Independent Consultant and Professional Developer Leawood, KA	3,8
Scott Marfilus	Independent Consultant and Professional Developer Bayside, WI	2,8
Susan McCloskey	VAATT Program Specialist/Dept. Chair Volusia County Schools Daytona Beach, FL	3,7, 8
Sandra D. Nettleton, Ph.D.	Director, Assistive Technology Albuquerque Public Schools Albuquerque, NM	3,7,8,9
Penny Reed, Ph.D.	Independent Consultant and Professional Developer Juneau, WI	2,7,8
Joy Smiley Zabala	Research Assistant University of Kentucky and Independent Professional Developer Lake Jackson, TX	1,2,8,12

1. general educator, 2. special educator, 3. speech language pathologist, 4. school psychological associate, 5. occupational therapist, 6. parent of a person with disabilities, 7. administrator, 8. professional developer/trainer, 9. instructor in higher education, 10. recreation therapist, 11. AT manufacturer's representative 12. RESNA ATP credentialed

APPENDIX C

Sample Recruitment and Instruction Letters



The National Assistive Technology Research Institute (NATRI) at the University of Kentucky is conducting a study to determine the perceived importance and utility of the Quality Indicators for Assistive Technology Services (QIAT) to each of five groups: school district personnel, AT service providers, consumers of AT and their families; professors and trainers who prepare educational and AT personnel; and, those who develop, monitor, or influence AT policy. In order to determine this, we are asking a panel of 100 leaders (20 from each perspective) with acknowledged experience and expertise in assistive technology to review each of the Quality Indicators and corresponding Intent Statements, record their perceptions, and, if they wish, make comments. Because of your leadership within at least one of these groups, the principal investigators of NATRI, Ted Hasselbring and Elizabeth Lahm, join me in inviting you to be a member of the panel. For the purpose of this study, we would like you to review the Quality Indicators from the perspective of (INSERT GROUP HERE)

In this study data will be collected via survey. The survey instrument will be available on the Web or on paper for those who prefer to work in that medium. Pilot tests indicate that respondents who limited their responses to ranking each item completed the survey in approximately 30-45 minutes while those who added comments took approximately an hour and a half to finish. All responses will be anonymous, identified to the researcher only by an identification number matched to the participant by a research assistant. Confidentiality is assured in any reporting or publication of the data.

We anticipate that data collection will begin in mid-August and will be completed by the end of August. If you elect to participate electronically, you will receive an email containing a personal sign-in identification number and the URL for the web site where you will engage in the study. In you elect to receive a paper survey, you will receive the survey by traditional mail close to that date.

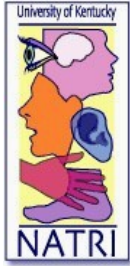
We hope that you will agree to participate in this study. We look forward to working with you and to the completion of a study that we feel has value to all who seek continuous improvement in the educational results of students with disabilities. **Please indicate your response to this invitation as soon as possible.** The following link will take you to an online form where you will be asked to complete a form indicating whether or not you will be able to participate and, if you agree to participate, indicate your preferred format, and provide brief additional information.

<http://edsrsrc.coe.uky.edu/joy/response.php>

If you have any questions or want additional information, please contact me via email at joy@joyzabala.com or by phone at 979-415-4555.

Sincerely,

Joy Zabala, NATRI Study Manager



Dear PARTICIPANT'S NAME:

The survey for the QIAT study is now available online. This message contains brief information about how the on-line survey works, the group from which you will review the survey, the URL where the survey is located, and the unique Sign-In ID that will provide you with access to the survey and protect your anonymity upon submission.

To get started, go to the URL listed below and enter the sign-in ID listed below. Though it is preferred that you complete the survey at one sitting, the system is designed to allow you to complete different parts at different times simply by returning to the URL and re-entering your sign-in ID which will remain active until you complete and submit the survey. You must complete each section in the order that they appear in the Table of Contents before you have access to the next section.

If you do not complete the survey in one sitting, you can elect to save the responses that you have completed. The system will not permit you to submit an incomplete survey. You are free to change any answers before you submit the survey. When you have completed the survey and are satisfied with your responses, please remember to select the SUBMIT button.

While you may meet the criteria for leadership in several of the groups participating in the study, please respond as a member of the following group:

Consumer of assistive technology or family member

If your group assignment is acceptable to you, you can proceed to the following URL where the survey is located.

<http://edsrsrc.coe.uky.edu/joy/>

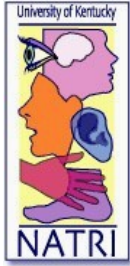
Each sign-in ID consists of two letters and two numbers. Your sign-in ID is:

CF17

If you believe that your interests are better suited to responding from one of the other perspectives listed, please write to Joy at [http://www.joy@joyzabala.com](mailto:joy@joyzabala.com) before answering any questions so that she can change your group. I will then provide you with a sign in ID that matches the group you prefer.

Please complete the survey as soon as possible.

Mailbox of the Research Assistant
QIAT Research Study



Thank you for agreeing to participate in this study. Your knowledge, experience, and insights will add greatly to the results. It will be greatly appreciated if you would complete the survey and return it to the research assistant in the enclosed envelope **within two weeks**. It is hoped that most of the data collection will be completed before the end of October.

I hope that you are not overwhelmed by the SIZE of the document that you have received and are being asked to review. Though it is many pages in length, there are two questions, at the most, on each page so you should be able to complete it quickly.

If you have not had the opportunity to look at the Quality Indicators all together or if you prefer to have a clean copy of the entire document in front of you as you work, you can download a printable [PDF document](#) of the Quality Indicators from the QIAT website located at <http://www.qiat.org>. This document requires [Adobe Acrobat Reader](#) to open. If you do not have Acrobat, you can visit the Adobe site and download it free of charge.

Though you elected to respond to the paper format of the survey, you still have the option to enter your data on the electronic copy if you wish. The form is totally web-based and is access by a password. Nothing comes through your email. Should you decide to enter your data electronically, just go to <http://edsrc.coe.uky.edu/joy> and enter the Survey Identification Number found in the upper left corner of your paper survey in the blank marked Sign-In ID. If you do this, please drop me a quick email at address below so that I will know your response has been received and can let the research assistant know.

If you have any questions or concerns please do not hesitate to contact me by email at joy@joyzabala.com or by telephone at (979) 415-4555.

Best regards,

Joy Zabala

APPENDIX D
Survey Instruments

Figure D1. Sign-In Screen for Electronic Survey

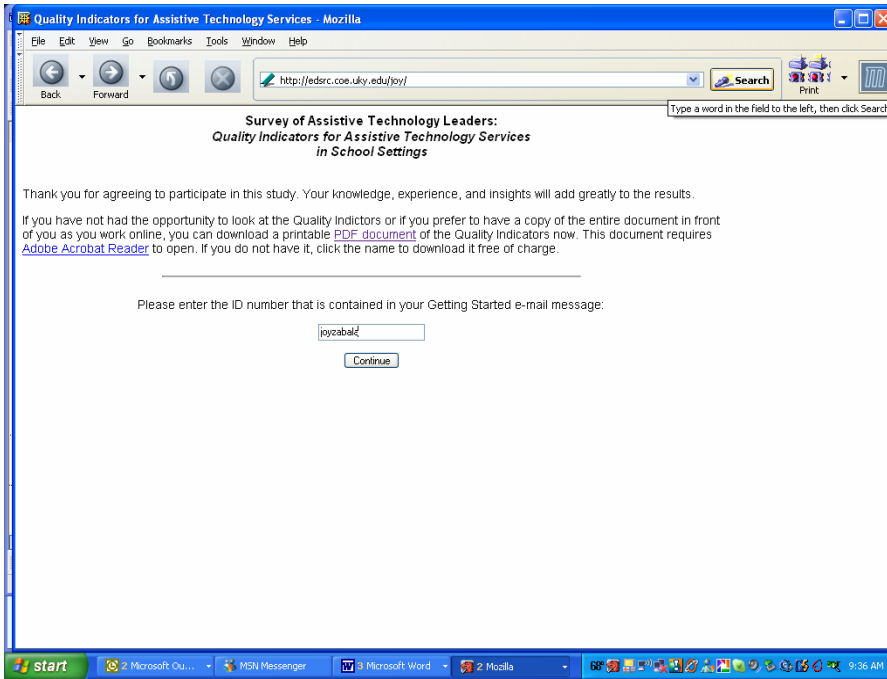


Figure D2. Table of Contents for Electronic Survey

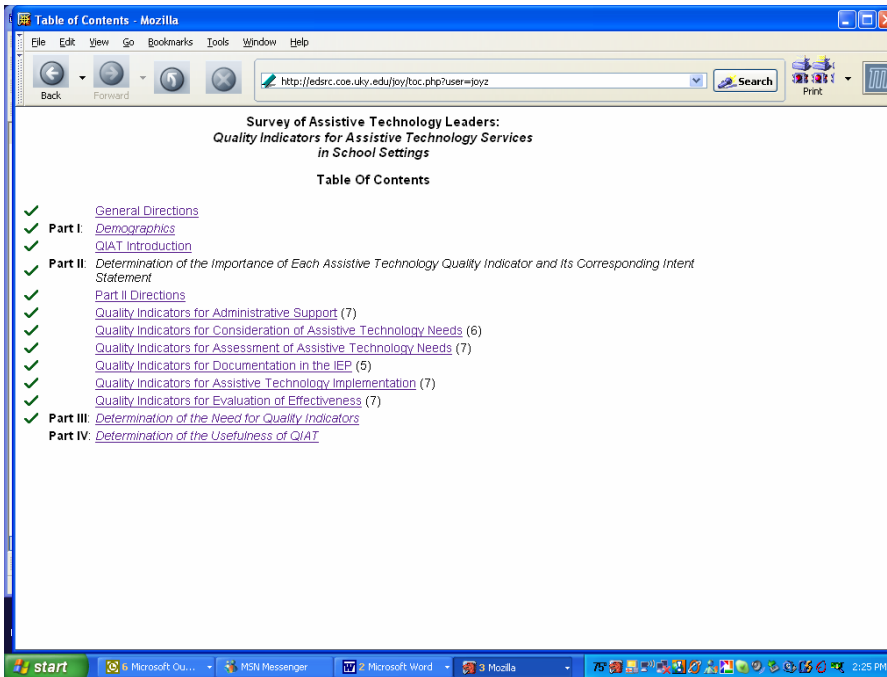


Figure D3. General Directions for Electronic Survey

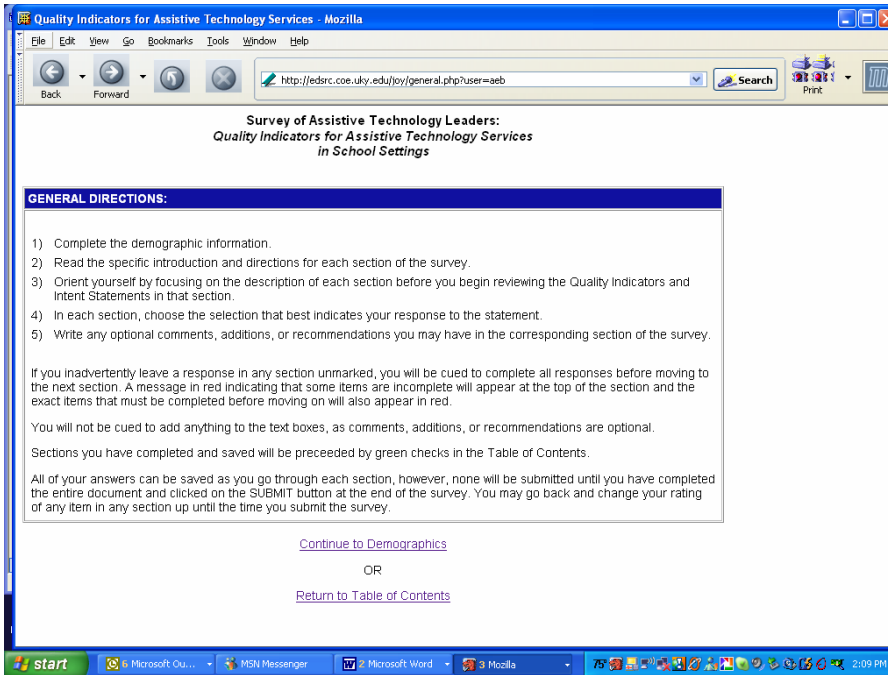


Figure D4. Demographics, Screen 1

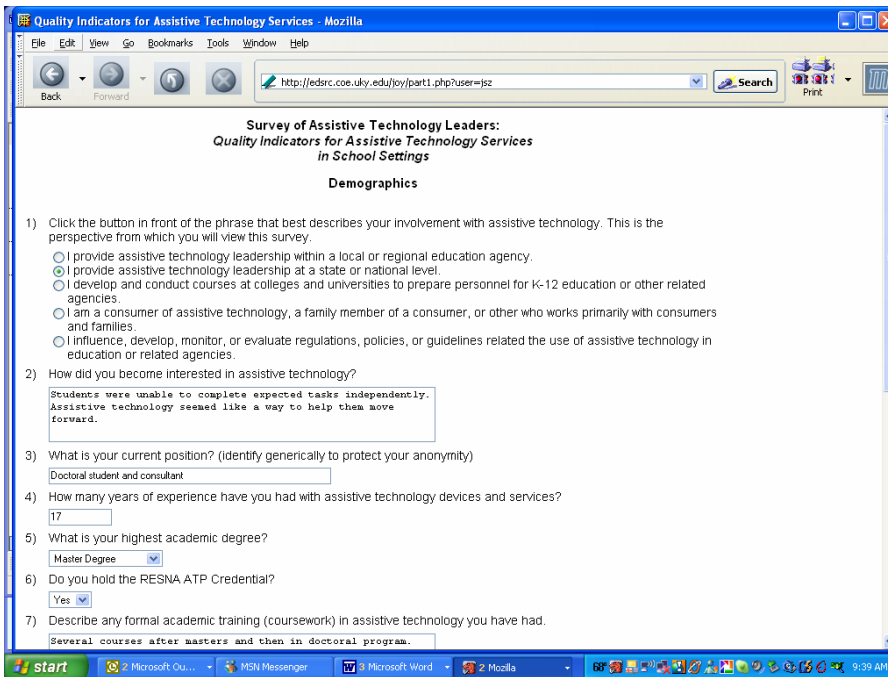


Figure D5. Demographics, Screen 2

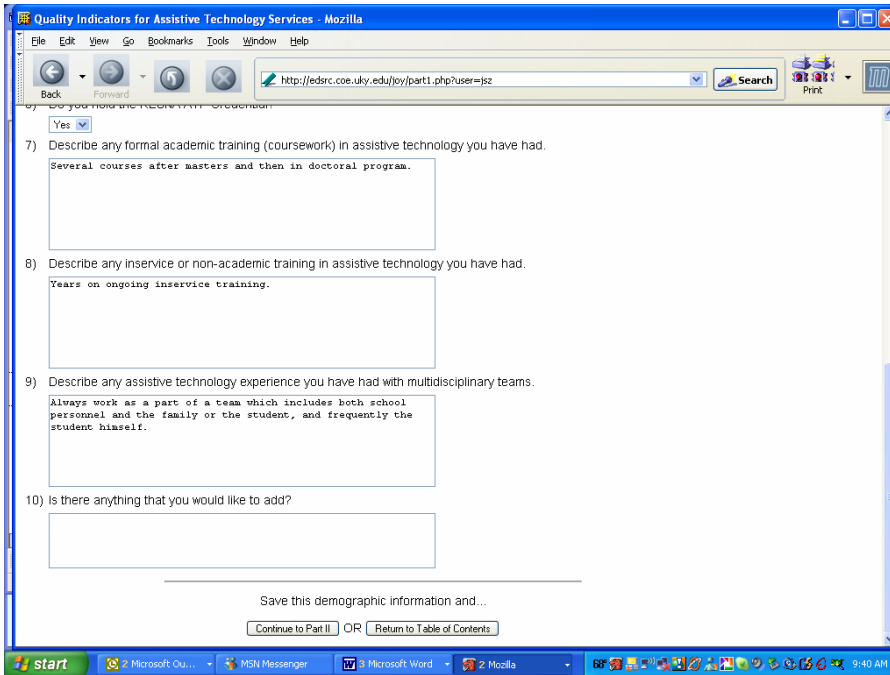


Figure D6. Demographic with Omission Prompts

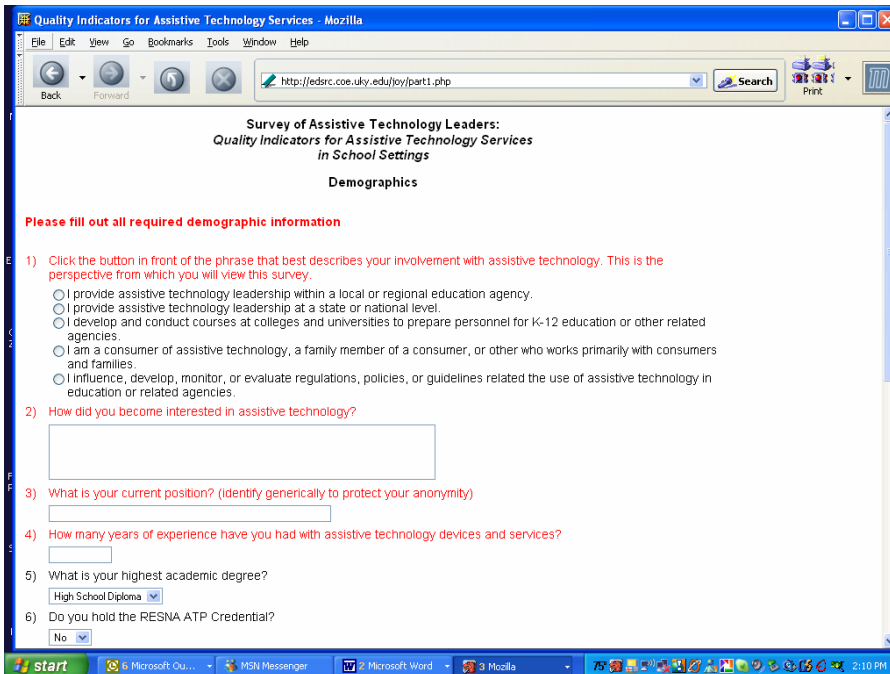


Figure D7. Sample Continuation Screen



D8. Introduction Screen for QIAT Overview

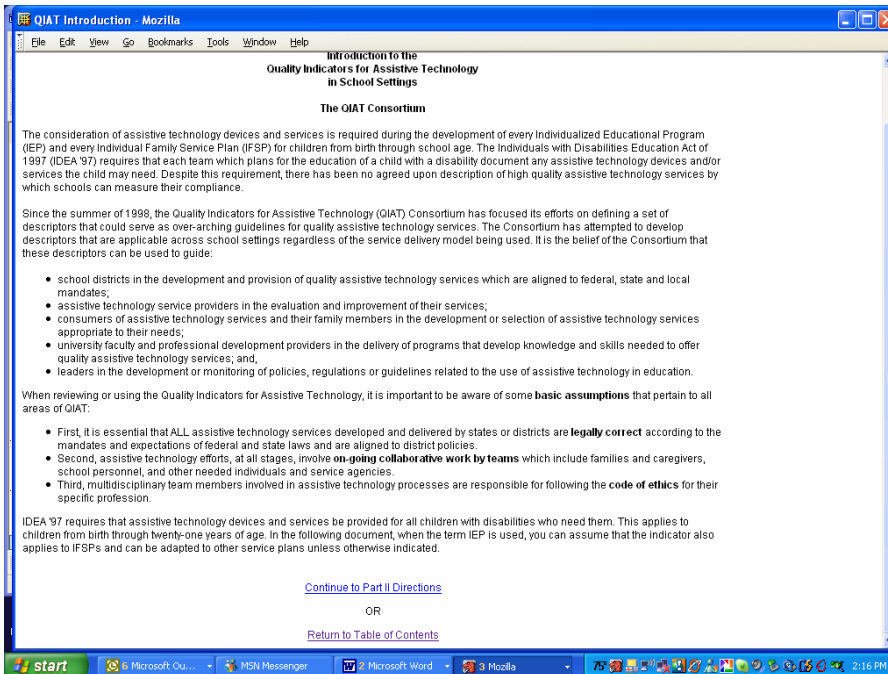


Figure D9. Directions for Part II of Electronic Survey

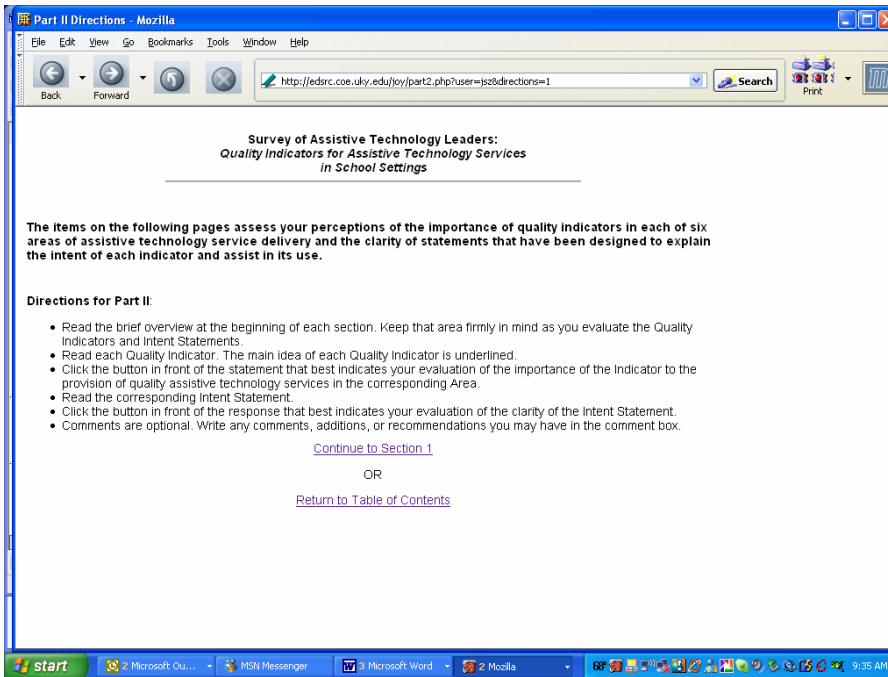


Figure D10. Sample Screen 1 of Part II Survey Questions

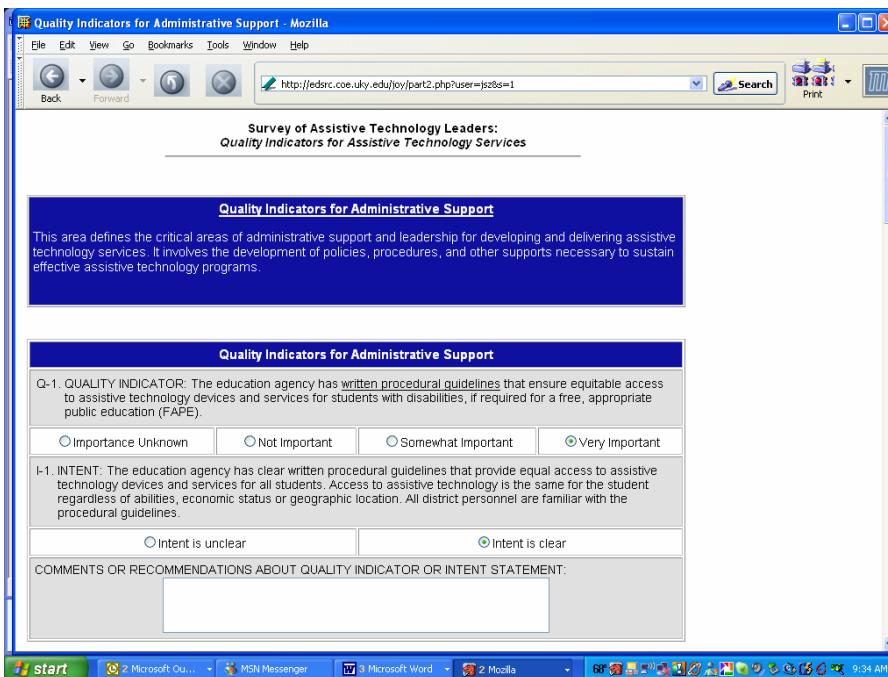


Figure D11. Sample Screen 2 of Part II Survey Questions

Quality Indicators for Administrative Support

Q-7. QUALITY INDICATOR: The education agency uses a systematic procedure to evaluate the components of assistive technology services to ensure accountability for student progress.

Importance Unknown
 Not Important
 Somewhat Important
 Very Important

I-7. INTENT: There is a clear systematic procedure with which all administrators are familiar and use regularly. This procedure is used consistently across the agency at both central office and the building level. The components of this process include budgeting, planning, delivery and evaluation of AT services.

Intent is unclear
 Intent is clear

COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:

Quality Indicators for Administrative Support

GENERAL COMMENTS ABOUT THIS SECTION:

This section seems to be the undergirding for the sustaining the rest.

Save this section and...

OR

OR

[Return to Table of Contents without saving](#)

Figure D12. Part III Survey Question

Part III: Determination of the Need for Quality Indicators - Mozilla

Survey of Assistive Technology Leaders:
Quality Indicators for Assistive Technology Services
in School Settings

PART III: DETERMINATION OF THE NEED FOR QUALITY INDICATORS

This section pertains to your perception of the general NEED for quality indicators to support the development and delivery of assistive technology services in your area of experience.

Directions:

- 1) Click the button in front of the choice that best reflects your perceptions of the need for quality indicators.
- 2) Write any comments or recommendations you have in the comment box.

To what extent is a list of assistive technology quality indicators needed to guide people whose assistive technology interests, activities, and responsibilities are similar to yours?

Need Unknown
 No Need
 Some Need
 Strong Need

COMMENTS OR RECOMMENDATIONS ABOUT NEED FOR QUALITY INDICATORS:

Save Part III and...

OR

OR

[Return to Table of Contents without saving](#)

Figure D13. Part IV Survey Question

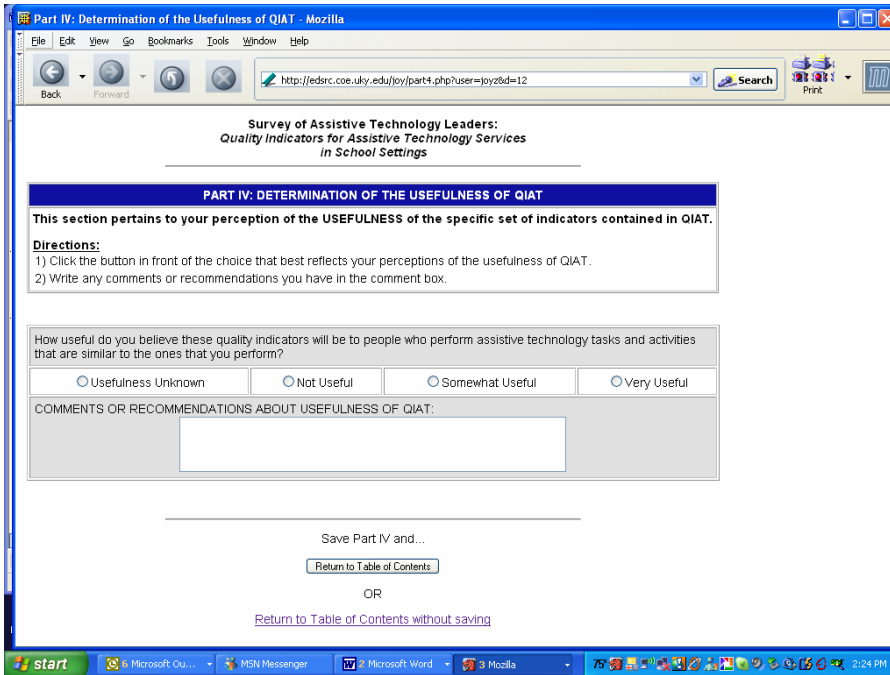
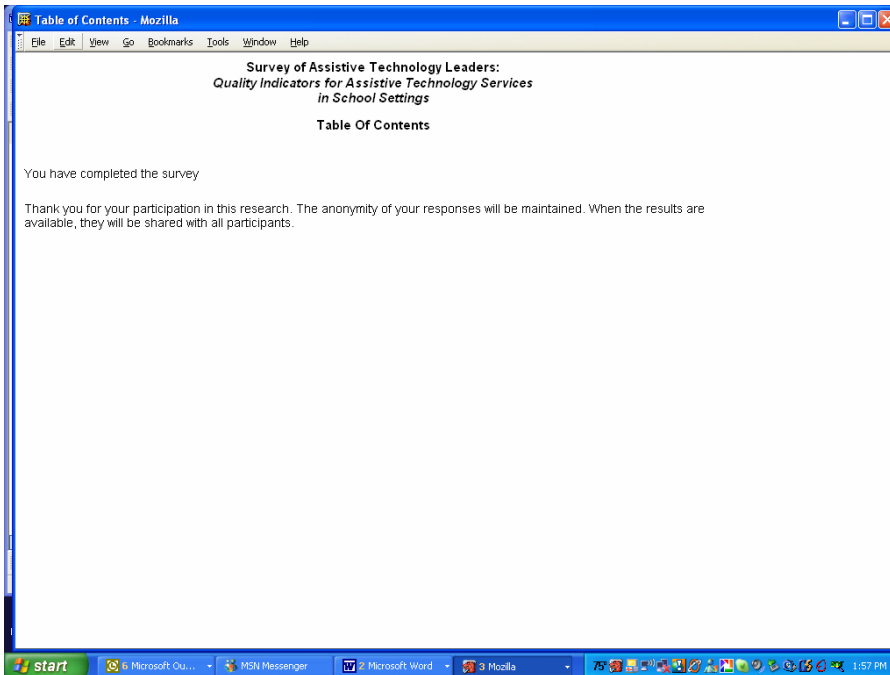


Figure D14. Survey Completed Screen



Survey Identification Number _____

**Survey of Assistive Technology Leaders:
*Quality Indicators for Assistive Technology Services***

GENERAL DIRECTIONS:

1. Complete the demographic information.
2. Read the specific introduction and directions for each section of the survey.
3. Focus your thoughts on the question that you will be addressing before you begin each section.
4. In each section, circle the selection that best indicates your response to the statement.
5. Write any comments, additions, or recommendations you may have in the corresponding section of the survey.

PART I: DEMOGRAPHICS

1) What is your interest in assistive technology? (Indicate the **ONE** that best describes you and the perspective from which you will view this survey.)

- I develop and conduct programs at colleges and universities to prepare personnel for K-12 education agencies
- I provide assistive technology leadership at state or national levels
- I provide assistive technology leadership within a local education agency (LEA).
- I am a student who uses assistive technology services or the parent/caregiver of a student who uses assistive technology.
- I develop or regulate regulations and policies related the use of assistive technology in education.

2) What led to your interest in assistive technology? _____

3) What is your current position? _____

4) How many years of experience have you had with assistive technology devices and services? _____

5) What is your professional background? _____

- 6) What is your highest academic degree? _____
- 7) Do you hold the RESNA ATP Credential? _____
- 8) Does your assistive technology work involve teaming with others? Please explain. _____
- _____
- 9) Have you had training (in-services, special sessions, etc.) related to assistive technology? If yes, please explain. _____
- _____
- 10) Have you had academic preparation (coursework) in assistive technology? If yes, please explain. _____
- _____
- 11) Is there anything that you would like to add? _____
- _____

PART II: DETERMINATION OF THE IMPORTANCE OF EACH ASSISTIVE TECHNOLOGY QUALITY INDICATOR AND ITS CORRESPONDING INTENT STATEMENT

The following questions assess your perceptions of the importance of quality indicators in each of seven areas of assistive technology and the clarity of statements that have been designed to explain their intent.

Directions:

- 1) Read the Introduction to Quality Indicators for Assistive Technology Services.
- 2) Pay special attention to the three bold-faced principles that underlie QIAT in its entirety. They are not repeated in each Area because they were determined by the QIAT Consortium to be critical to all Areas.
- 3) Read the brief overview at the beginning of each section. Keep that area firmly in mind as you evaluate the Quality Indicators and Intent Statements.
- 4) Read each Quality Indicator.
- 5) Circle the statement that best indicates your evaluation of the importance of the Indicator to the provision of quality assistive technology services in the corresponding Area.
- 6) Read the corresponding Intent Statement.
- 7) Circle the response that best indicates your evaluation of the clarity of the Intent Statement.
- 8) Write any comments, additions, or recommendations you may have in the comment box.

INTRODUCTION TO QUALITY INDICATORS FOR ASSISTIVE TECHNOLOGY SERVICES

The QIAT Consortium

The consideration of assistive technology devices and services is required during the development of every Individualized Educational Program (IEP) and every Individual Family Service Plan (IFSP) for children from birth to school age. The Individuals with Disabilities Education Act of 1997 (IDEA '97) requires that each team which plans for the education of a child with a disability document any assistive technology devices and/or services the child may need. Despite this requirement, there has been no agreed upon description of high quality assistive technology services by which schools can measure their compliance.

Since the summer of 1998, the Quality Indicators for Assistive Technology (QIAT) Consortium has focused its efforts on defining a set of descriptors that could serve as over-arching guidelines for quality assistive technology services. The Consortium has attempted to develop descriptors that are applicable regardless of service delivery models. It is the belief of the Consortium that these descriptors can be used to guide:

1. school districts in the development and provision of quality assistive technology services which are aligned to federal, state and local mandates;
2. assistive technology service providers in the evaluation and improvement of their services;
3. consumers of assistive technology services in the selection of adequate assistive technology services;
4. university faculty and professional development providers in the delivery of programs that develop knowledge and skills needed to offer quality assistive technology services; and,
5. leaders in the development of regulations and policies related to the use of assistive technology in education.

When reviewing or using the Quality Indicators for Assistive Technology, it is important to be aware of some **basic assumptions** that pertain to all areas of QIAT. First, it is essential that ALL assistive technology services developed and delivered by states or districts are **legally correct** according to the mandates and expectations of federal and state laws and are aligned to district policies. Second, assistive technology efforts, at all stages, involves **on-going collaborative work by teams** which include families and caregivers, school personnel, and other needed individuals and service agencies. Third multidisciplinary team members involved in assistive technology processes are responsible for following the **code of ethics** for their specific profession.

Note: IDEA '97 requires that assistive technology devices and services be provided for all children with disabilities who need them. This applies to children from birth to twenty-one years of age. In the following document, when the term IEP is used, the reader can assume that the indicator also applies to IFSPs and can be adapted to other service plans unless otherwise indicated.

Quality Indicators for Administrative Support

This area defines the critical areas of administrative support and leadership for developing and delivering assistive technology services. It involves the development of policies, procedures, and other supports necessary to sustain effective assistive technology programs.

1. QUALITY INDICATOR: The education agency has written procedural guidelines that ensure equitable access to assistive technology devices and services for students with disabilities, if required for a free, appropriate public education (FAPE).			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The education agency has clear written procedural guidelines that provide equal access to assistive technology devices and services for all students. Access to assistive technology is the same for the student regardless of abilities, economic status or geographic location. All district personnel are familiar with the procedural guidelines.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

2. QUALITY INDICATOR: The education agency has clearly defined and broadly disseminated policies and procedures for providing effective assistive technology devices and services.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: District personnel in special education and general education are familiar with the policies and procedures in both special education as well as general education. The procedures are readily available at each campus and all school personnel know how to access the procedures.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Administrative Support (continued)

<p>3. QUALITY INDICATOR: The education agency has written descriptions of job requirements, which include knowledge, skills, and responsibilities for staff members who provide assistive technology services.</p>			
Importance Unknown	Not Important	Somewhat Important	Very Important
<p>INTENT: The education agency has clear written statements of job requirements that address the necessary AT knowledge, skills and responsibilities for all staff members. This includes all personnel from the classroom through central office. This could be reflected in a position description, assignment of duty statement or some other written description.</p>			
Intent is unclear		Intent is clear	

<p>4. QUALITY INDICATOR: The education agency employs a range of personnel with competencies needed to provide quality assistive technology services within their areas of primary responsibility.</p>			
Importance Unknown	Not Important	Somewhat Important	Very Important
<p>INTENT: The agency employs staff members from the classroom through the central office who have knowledge and skills in AT commensurate with job requirements. Though classroom teachers, supervisors and purchasing agents may need different knowledge and skills related to assistive technology, all must be knowledgeable for the system to work well.</p>			
Intent is unclear		Intent is clear	
<p>COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:</p>			

Quality Indicators for Administrative Support (continued)

5. QUALITY INDICATOR: The education agency includes assistive technology in the technology planning and budgeting process.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Historically, the AT needs of the agency have either been separate or omitted. A comprehensive technology plan provides for the technology needs of all students in both general education as well as special education.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

6. QUALITY INDICATOR: The education agency provides continuous learning opportunities about assistive technology devices, strategies and resources for staff, family and students.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The training addresses the needs of the student, the family, and all of the staff involved with the student. Ongoing training and technical assistance opportunities are readily accessible to all members of the IEP team. The training and technical assistance includes training on AT devices, strategies and resources to support IEP goals and objectives.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Administrative Support (continued)

<p>7. QUALITY INDICATOR: The education agency uses a systematic procedure to evaluate the components of assistive technology services to ensure accountability for student progress.</p>			
Importance Unknown	Not Important	Somewhat Important	Very Important
<p>INTENT: There is a clear systematic procedure with which all administrators are familiar and use regularly. This procedure is used consistently across the agency at both central office and the building level. The components of this process include budgeting, planning, delivery and evaluation of AT services.</p>			
Intent is unclear		Intent is clear	
<p>COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:</p>			

PLEASE PROCEED TO THE NEXT SECTION OF PART II.

Quality Indicators for Consideration of Assistive Technology Needs

Consideration of the need for assistive technology devices and services is an integral part of the educational process identified by IDEA '97 for referral, evaluation, and IEP development. Although assistive technology is considered at all stages of the process, the Consideration Quality Indicators are specific to the consideration of assistive technology in the development of the IEP as mandated by IDEA '97. In most instances, the Quality Indicators are also appropriate for the consideration of assistive technology for students who qualify for services under other legislation (e.g. 504, ADA).

8. QUALITY INDICATOR: Assistive technology devices and services are considered for all students with disabilities regardless of type or severity of disability.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: IDEA '97 is based on a child-centered process. Decisions regarding the need for assistive technology are determined by the unique educational needs of each individual student. Services cannot be determined based on categories.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Consideration of Assistive Technology Needs (continued)

9. QUALITY INDICATOR: The IEP team has the knowledge and skills to make informed assistive technology decisions.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The IEP team members collectively use their skills to recommend assistive technology devices and services needed to remove barriers to student performance. When the assistive technology needs are beyond the knowledge and scope of the IEP team, additional support from other resources is sought.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

10. QUALITY INDICATOR: The IEP team uses a collaborative decision making process based on data about the student environment and tasks to determine assistive technology needs.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Although IDEA requires that the AT needs of students be considered during the development of the IEP, it does not specify a process. The IEP team uses a state or district determined process to make informed decisions regarding the need for assistive technology. The process is communicated and used consistently across the district.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Consideration of Assistive Technology Needs (continued)

11. QUALITY INDICATOR: A continuum of assistive technology devices and services is explored.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The IEP team considers a range of tools and strategies, including no tech, low tech and high tech to meet the educational needs of the student. Consideration is not limited to the devices and services currently available within the district.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

12. QUALITY INDICATOR: Decisions regarding the need for assistive technology devices and services are made based on access to the curriculum and the student's IEP goals and objectives.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: After the IEP team determines the curricular tasks the student needs to complete and develops the goals and objectives, the team considers whether assistive technology is required to accomplish those tasks.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Consideration of Assistive Technology Needs (continued)

13. QUALITY INDICATOR: Decisions regarding the need for assistive technology devices and services and supporting data are documented .			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The IEP team determines whether or not assistive technology devices and/or services are needed. The IEP team uses something more than a check box to document the basis of the decision.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

PLEASE PROCEED TO THE NEXT SECTION OF PART II.

Indicators for Assessment of Assistive Technology Needs

Quality Indicators for Assessment of Assistive Technology Needs is a process conducted by a team, used to identify tools and strategies to address a student’s specific need(s). The issues that lead to an assistive technology assessment may be very simple and quickly answered or more complex and challenging. Assessment takes place when these issues are beyond the scope of the problem solving that occurs as a part of normal service delivery.

14. QUALITY INDICATOR: Assistive technology assessment procedures are clearly defined and consistently used.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Throughout the educational agency, personnel are well informed and trained about assessment procedures and how to initiate them. There is consistency throughout the agency in the conducting of assistive technology assessments.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

15. QUALITY INDICATOR: Assistive technology assessments are conducted by a multidisciplinary team that actively involves the student and family or caregivers.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The multidisciplinary team conducting an assistive technology assessment is comprised of people who collectively have knowledge about the abilities and needs of the student, the demands of the customary environments, the educational objectives, and assistive technology. Various team members bring different information and strengths to the assessment process.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Assessment of Assistive Technology Needs (continued)

16. QUALITY INDICATOR: Assistive technology assessments are conducted in the student's customary environments .			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The assessment process takes place in customary environments (e.g., classroom, lunchroom, home, playground, etc.) because of the varied characteristics and demands in those environments. In each environment, district personnel, the student and family or caregivers are involved in gathering specific data and relevant information.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

17. QUALITY INDICATOR: Assistive technology assessments, including needed trials, are completed within reasonable time lines .			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Assessments are initiated in a timely fashion and completed within a time line that is reasonable as determined by the IEP team. The timeline complies with applicable state and agency requirements.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Assessment of Assistive Technology Needs (continued)

18. QUALITY INDICATOR: Recommendations from assistive technology assessments are based on data about the student, environments and tasks.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The assessment includes information about the student's needs and abilities, demands of the environments, and educational tasks and objectives. It may include trial use of the technology in the environments in which it will be used.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

19. QUALITY INDICATOR: The assessment provides the IEP team with documented recommendations about assistive technology devices and services.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The recommendations from the assessment are clear and concise so that the IEP team can use them in decision-making and program development.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Assessment of Assistive Technology Needs (continued)

20. QUALITY INDICATOR: Assistive technology needs are reassessed by request or as needed based on changes in the student, environments and/or tasks.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: An assistive technology assessment is available any time it is needed due to such changes or when it is requested by the parent or other members of the IEP team.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

PLEASE PROCEED TO THE NEXT SECTION OF PART II.

Quality Indicators for Documentation in the IEP

The Individuals with Disabilities education Act of 1997 (IDEA '97) requires that the IEP team consider assistive technology needs in the development of every Individualized Education Program (IEP). Once the IEP team has reviewed assessment results and determined that assistive technology is needed for provision of a free appropriate public education (FAPE), it is important to include that the IEP document reflects the team’s determination in as clear a fashion as possible. The Quality Indicators for Assistive Technology in the IEP help the team to describe the role of assistive technology in the child’s educational program.

21. QUALITY INDICATOR: The education agency has guidelines for documenting assistive technology needs in the IEP and everyone on the IEP team is aware of them.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Education agencies give instructions to IEP teams as to how IEPs should be written. These instructions include guidance about documentation of assistive technology needs. Districts give direction to IEP teams about how to document assistive technology as a related service, supplementary aid or service, goal, objective, etc.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

22. QUALITY INDICATOR: Assistive technology is included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: IEPs are written in such a manner that everyone who attended the IEP meeting and other people who might need to use the information to implement the plan understand what is to be done. IEPs are clearly written with as little “jargon” as possible. They give a clear picture of the devices and services that the IEP team determined were necessary.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Documentation in the IEP (continued)

23. QUALITY INDICATOR: Assistive technology is used as a tool to support achievement of IEP goals and objectives as well as participation and progress in the general curriculum.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: There should be a clear relationship between assistive technology devices and services included in an IEP and the goals and objectives developed by the team. Most goals and objectives should be developed before decisions about assistive technology use are made.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

24. QUALITY INDICATOR: IEP content regarding assistive technology use is written in language that describes measurable and observable outcomes .			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: At the point of periodic review, the IEP is used to measure whether the district met its commitments and the whether the educational goals set for the child were appropriate. Content that describes measurable and observable outcomes for assistive technology allows the team to review the success of the plan.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Documentation in the IEP (continued)

25. QUALITY INDICATOR: All services needed to implement assistive technology use are documented in the IEP.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: IDEA lists a variety of services (i.e. evaluating, customizing, maintaining, coordinating services, training for the child and family, training and technical assistance for professionals) which must be provided to support the child’s use of an assistive technology device. IEPs that include assistive technology devices often fail because inadequate services are provided. It is important that the IEP includes required assistive technology services as well as devices.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

PLEASE PROCEED TO THE NEXT SECTION OF PART II.

Quality Indicators for Assistive Technology Implementation

Assistive technology implementation pertains to the ways that assistive technology devices and services, as included in the IEP (including goals/objectives, related services, supplementary aids and services and accommodations or modifications) are delivered and integrated into the student’s educational program. Assistive technology implementation involves people working together to support the student using assistive technology to accomplish expected tasks necessary for active participation in customary educational

26. QUALITY INDICATOR: Assistive technology implementation proceeds according to a collaboratively developed plan .			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Following IEP development, all those involved in implementation work together to develop a written action plan that provides detailed information about how the assistive technology will be used in specific educational settings, what will be done and who will do it.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

27. QUALITY INDICATOR: Assistive technology is integrated into the curriculum and daily activities of the student.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Assistive Technology is used when and where needed to facilitate the student's access to the curriculum, and active participation in educational activities and routines.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Assistive Technology Implementation (continued)

28. QUALITY INDICATOR: Team members in all of the child's environments share responsibility for implementation of the plan.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Persons working with the student in each environment know what to do to support the student using assistive technology.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

29. QUALITY INDICATOR: The student uses multiple strategies to accomplish tasks and the use of assistive technology may be included in those strategies.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Assistive Technology tools are used when needed to remove barriers to participation and/or performance. Alternate strategies may include use of the student's natural abilities, other supports, or modifications to the curriculum, task or environment. At times these alternate strategies may be more efficient than the use of assistive technology.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Assistive Technology Implementation (continued)

30. QUALITY INDICATOR: Training for student, family and staff is an integral part of implementation.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Determination the training needs of the student, staff and family based on how the assistive technology will be used in each unique environment. Training and technical assistance are planned and implemented as ongoing processes based on current and changing needs.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

31. QUALITY INDICATOR: Assistive technology implementation is initially based on assessment data and is adjusted based on performance data.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Formal and informal assessment data guide initial decision-making and planning for Assistive Technology implementation. As the plan is carried out, student performance is monitored and implementation is adjusted in a timely manner to support student progress.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Assistive Technology Implementation (continued)

32. QUALITY INDICATOR: Assistive technology implementation includes management and maintenance of equipment and materials.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: For technology to be useful it is important to include that equipment management responsibilities are clearly defined and assigned. Though specifics may differ based on the technology, some general areas may include organization of equipment and materials, responsibility for acquisition, repair and replacement, and assurance that equipment is operational.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

PLEASE PROCEED TO THE NEXT SECTION OF PART II.

Quality Indicators for Evaluation of Effectiveness

This area addresses the evaluation of the effectiveness of the assistive technology devices and services are provided. It includes data collection and documentation to monitor changes in student performance resulting from the implementation. Student performance is reviewed in order to identify if, when, or where modifications and revisions to the implementation are needed.

33. QUALITY INDICATOR: Team members share clearly defined responsibilities to ensure that data are collected, evaluated, and interpreted by capable and credible team members.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Each team member is accountable for ensuring that the data collection process determined by the team is implemented. Individual roles in the collection and review of the data are assigned by the team. Data collection, evaluation, and interpretation are lead by persons with relevant training and knowledge. It can be appropriate for different individual team members to conduct these tasks.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

34. QUALITY INDICATOR: Data are collected on specific student behaviors that have been identified by the team and are related to one or more goal .			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: In order to evaluate the success of the assistive technology use, data is collected on various aspects student performance. The behavior targeted for data collection is related to one or more IEP goal (s) (e.g. ability to accomplish the task, use of the technology, changes in student behavior).			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Evaluation of Effectiveness (continued)

35. QUALITY INDICATOR: Evaluation of effectiveness reflects the objective measurement of changes in the student’s performance (e.g. student preferences, productivity, participation, independence, quantity, quality, speed, accuracy, frequency, or spontaneity).			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Expected changes in student performance are determined by the IEP team. The behavior targeted for data collection must be observable and measurable. Data which capture changes in student behaviors may be either quantitative, qualitative, or both.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

36. QUALITY INDICATOR: Effectiveness is evaluated across environments including during naturally occurring opportunities as well as structured activities.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The team determines the environments where the changes in student performance are expected to occur and prioritizes appropriate activities for data collection in those environments.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Evaluation of Effectiveness (continued)

37. QUALITY INDICATOR: Evaluation of effectiveness is a dynamic, responsive, ongoing process that is reviewed periodically.			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: Scheduled data collection occurs over time and changes in response to both expected and unexpected results. Data collection reflects measurement strategies appropriate to individual student’s needs. Team members evaluate and interpret data during periodic progress reviews.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

38. QUALITY INDICATOR: Data collected provide a means to analyze response patterns and student performance .			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: The team regularly analyzes data to determine student progress and error patterns.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

Quality Indicators for Evaluation of Effectiveness (continued)

39. QUALITY INDICATOR: The team makes changes in the student’s educational program based on data .			
Importance Unknown	Not Important	Somewhat Important	Very Important
INTENT: During the process of reviewing data, the team determines whether program changes/modifications need to be made in the environment, tasks, and tools. The team acts on these decisions and makes needed changes.			
Intent is unclear		Intent is clear	
COMMENTS OR RECOMMENDATIONS ABOUT QUALITY INDICATOR OR INTENT STATEMENT:			

PLEASE PROCEED TO THE PART III.

PART III: DETERMINATION OF NEED FOR QUALITY INDICATORS

This section pertains to your perception of the general **NEED** for quality indicators to support the development and delivery of assistive technology services in your area of expertise.

Directions:

1. Circle the choice that best reflects your perceptions of the need for quality indicators.
2. Write any comments or recommendations you have in the comment box.

To what extent is a list of assistive technology quality indicators needed to guide people whose assistive technology interests, activities, and responsibilities are similar to yours?			
Need Unknown	No Need	Some Need	Strong Need
COMMENTS OR RECOMMENDATIONS:			

PLEASE PROCEED TO PART IV:

DETERMINATION OF THE USEFULNESS OF QIAT

This section pertains to your perception of the **USEFULNESS** of the specific set of indicators contained in QIAT.

Directions:

1. Circle the choice that best indicates your evaluation of the usefulness of QIAT
2. Write any comments or recommendations you may have in the comment box.

How useful do you believe these quality indicators will be to people who perform assistive technology tasks and activities that are similar to the ones that you perform?			
Need Unknown	Not useful	Somewhat useful	Very useful
COMMENTS OR RECOMMENDATIONS:			

Thank you for your participation in this research. The anonymity of your responses will be maintained. When the results are available, they will be shared with all participants.

APPENDIX E

Results by Group

**Research Questions
1, 2, 3, and 5**

Table E1. Responses to Need for Quality Indicators by Group

	Need for Quality Indicators			
	Need Unknown	Not Needed	Some Need	Strong Need
AT Consumers & Families (n=23)				
N	0	1	4	18
%		4.3	17.3	78.3
District & Regional AT Leaders (n=23)				
N	0	0	2	21
%			8.6	91.3
State & National AT Leaders (n=24)				
N	0	0	5	19
%			28.8	79.2
AT Policy Makers (n=26)				
N	0	0	4	22
%			15.4	84.6
Higher Education AT Faculty (n=24)				
N	0	0	5	19
%			20.8	79.2
Totals (N=120)				
N	0	1	20	99
%		0.8	16.7	82.5

Table E2. Responses to Quality Indicator 1 by Group

(The education agency has **written procedural guidelines** that ensure equitable access to assistive technology devices and service for students with disabilities, if required for FAPE.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	3	20	3	20
%			13.0	87.0	13.0	87.0
District & Regional AT Leaders (n=23)						
N	0	0	1	22	2	21
%			4.3	95.7	8.7	91.3
State & National AT Leaders (n=24)						
N	0	0	0	24	0	24
%				100.0		100.0
AT Policy Makers (n=26)						
N	0	0	0	26	2	24
%				100.0	7.7	92.3
Higher Education AT Faculty (n=24)						
N	0	0	0	24	4	20
%				100.0	16.7	83.3
Totals (N=120)						
N	0	0	0	24	4	20
%				100.0	16.7	83.3

Table E3. Responses to Quality Indicator 2 by Group

(The education agency has clearly defined and **broadly disseminated policies and procedures** for providing effective assistive technology devices and services.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	3	20	0	23
%			13.0	87.0		100.0
District & Regional AT Leaders (n=23)						
N	0	0	2	21	0	23
%			8.7	91.3		100.0
State & National AT Leaders (n=24)						
N	0	0	3	21	0	24
%			12.5	87.5		100.0
AT Policy Makers (n=26)						
N	0	0	2	24	3	23
%			7.7	92.3	11.5	88.5
Higher Education AT Faculty (n=24)						
N	0	0	4	20	3	21
%			16.7	83.3	12.5	87.5
Totals (N=120)						
N	0	0	14	106	6	114
%			11.7	88.3	5.0	95.0

Table E4. Responses to Quality Indicator 3 by Group

(The education agency has **written descriptions of job requirements**, which include knowledge, skills, and responsibilities for staff members who provide assistive technology services.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	3	20	1	22
%			13.0	87.0	4.3	97.7
District & Regional AT Leaders (n=23)						
N	0	0	6	17	1	22
%			26.1	73.9	4.3	95.7
State & National AT Leaders (n=24)						
N	0	1	5	18	2	22
%		4.2	20.8	75.0	8.3	91.7
AT Policy Makers (n=26)						
N	0	0	10	16	2	24
%			38.5	61.5	7.7	92.3
Higher Education AT Faculty (n=24)						
N	0	1	9	14	8	16
%		4.2	37.5	58.3	33.3	66.7
Totals (N=120)						
N	0	2	33	85	14	106
%		1.6	27.5	70.8	11.6	88.3

Table E5. Responses to Quality Indicator 4 by Group

(The education agency employs a **range of personnel with competencies** needed to provide quality assistive technology services within their areas of primary responsibility.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	2	21	2	21
%			8.7	91.3	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	2	21	0	23
%			8.7	91.3		100.0
State & National AT Leaders (n=24)						
N	0	0	7	17	2	22
%			29.2	70.8	8.3	91.7
AT Policy Makers (n=26)						
N	0	0	2	24	4	22
%			7.7	92.3	15.4	84.6
Higher Education AT Faculty (n=24)						
N	1	1	6	16	7	17
%	4.2	4.3	25.0	66.7	29.2	70.8
Totals (N=120)						
N	1	1	19	99	15	105
%	0.8	0.8	15.8	82.5	12.5	87.5

Table E6. Responses to Quality Indicator 5 by Group

(The education agency includes **assistive technology in the technology planning and budgeting** process.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	0	23	2	21
%				100.0	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	5	18	3	20
%			21.7	78.3	13.0	87.0
State & National AT Leaders (n=24)						
N	0	0	0	24	2	22
%				100.0	8.3	91.7
AT Policy Makers (n=26)						
N	0	0	0	26	3	23
%				100.0	11.5	88.5
Higher Education AT Faculty (n=24)						
N	0	0	1	23	5	19
%			4.2	95.8	20.8	79.2
Totals (N=120)						
N	0	0	6	114	15	105
%			5.0	95.0	12.5	87.5

Table E7. Responses to Quality Indicator 6 by Group

(The education agency provides **continuous learning opportunities about assistive technology** devices, strategies and resources for staff, family and students.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	1	22	0	23
%			4.3	95.7		100.0
District & Regional AT Leaders (n=23)						
N	0	0	1	22	0	23
%			4.3	95.7		100
State & National AT Leaders (n=24)						
N	0	0	0	24	1	23
%				100.0	4.2	95.8
AT Policy Makers (n=26)						
N	0	0	0	26	1	25
%				100.0	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	3	21	3	21
%			12.5	87.5	12.5	87.5
Totals (N=120)						
N	0	0	5	115	5	115
%			4.2	95.8	4.2	95.8

Table E8. Responses to Quality Indicator 7 by Group

(The education agency uses a **systematic procedure to evaluate** the components of assistive technology services to ensure accountability for student progress.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	1	0	7	15	6	17
%	4.3		30.4	65.2	26.1	73.9
District & Regional AT Leaders (n=23)						
N	0	0	3	20	4	19
%			13.0	87.0	17.4	82.6
State & National AT Leaders (n=24)						
N	0	0	1	23	3	21
%			4.2	95.8	12.5	87.5
AT Policy Makers (n=26)						
N	1	0	5	20	4	22
%	3.8		19.2	76.9	15.4	84.
Higher Education AT Faculty (n=24)						
N	1	0	5	18	6	18
%	4.2		20.8	75.0	25.0	75.0
Totals (N=120)						
N	3	0	21	96	23	97
%	2.5		17.5	80.0	19.2	80.8

Table E9. Responses to Quality Indicator 8 by Group

(Assistive technology devices and services are **considered for all students with disabilities** regardless of type or severity of disability.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	0	23	2	21
%				100.0	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	1	22	4	19
%			4.3	95.7	17.4	82.6
State & National AT Leaders (n=24)						
N	0	0	0	24	5	19
%				100.0	20.8	72.9
AT Policy Makers (n=26)						
N	0	0	0	26	1	25
%				100.0	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	0	24	5	19
%				100.0	20.8	79.2
Totals (N=120)						
N	0	0	1	119	17	103
%			0.8	99.2	14.2	85.8

Table E10. Responses to Quality Indicator 9 by Group

(The IEP team has the **knowledge and skills** to make informed assistive technology decisions.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	0	23	3	20
%				100.0	13.0	87.0
District & Regional AT Leaders (n=23)						
N	0	0	2	21	1	22
%			8.7	91.3	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	3	21	4	20
%			12.5	87.5	16.7	83.3
AT Policy Makers (n=26)						
N	0	0	0	26	0	26
%				100.0		100.0
Higher Education AT Faculty (n=24)						
N	0	0	2	22	2	22
%			8.3	91.7	8.3	91.7
Totals (N=120)						
N	0	0	7	113	10	110
%			5.8	94.2	8.3	91.7

Table E11. Responses to Quality Indicator 10 by Group

The IEP team uses a collaborative **decision making process** based on data about the student environment and tasks to determine assistive technology needs.

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	6	17	1	22
%			26.1	73.9	4.3	97.7
District & Regional AT Leaders (n=23)						
N	0	0	2	21	2	21
%			8.7	91.2	8.7	91.3
State & National AT Leaders (n=24)						
N	0	0	1	23	1	23
%			4.2	95.8	4.2	95.8
AT Policy Makers (n=26)						
N	0	0	3	23	4	22
%			11.5	88.5	15.4	84.6
Higher Education AT Faculty (n=24)						
N	0	0	5	19	5	19
%			20.8	79.2	20.8	79.2
Totals (N=120)						
N	0	0	17	103	13	107
%			14.2	85.8	10.8	89.2

Table E12. Responses to Quality Indicator 11 by Group

(A continuum of assistive technology devices and services is explored.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	4	19	3	20
%			17.4	82.6	13.0	87.0
District & Regional AT Leaders (n=23)						
N	0	0	1	22	1	22
%			4.3	95.7	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	2	22	3	21
%			8.3	91.7	12.5	87.5
AT Policy Makers (n=26)						
N	0	0	2	24	0	26
%			7.7	92.3		100.
Higher Education AT Faculty (n=24)						
N	0	0	2	22	3	21
%			8.3	91.7	12.5	87.5
Totals (N=120)						
N	0	0	11	109	10	110
%			9.2	90.8	8.3	91.7

Table E13. Responses to Quality Indicator 12 by Group

(Decisions regarding the need for assistive technology devices and services are made based on **access to the curriculum** and the student’s IEP goals and objectives.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	4	19	4	19
%			17.4	82.6	17.4	82.6
District & Regional AT Leaders (n=23)						
N	0	0	1	22	1	22
%			4.3	95.7	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	0	24	1	23
%				100.0	4.2	95.8
AT Policy Makers (n=26)						
N	0	2	0	24	4	22
%		7.7		92.3	15.4	84.6
Higher Education AT Faculty (n=24)						
N	0	0	0	24	5	19
%				100.0	20.8	79.2
Totals (N=120)						
N	0	2	5	113	15	105
%		1.6	4.2	94.2	12.5	87.5

Table E14. Responses to Quality Indicator 13 by Group

(Decisions regarding the need for assistive technology devices and services and supporting data are **documented**.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	4	19	2	21
%			17.4	82.6	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	1	22	1	22
%			4.3	95.7	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	0	24	3	21
%				100.0	12.5	87.5
AT Policy Makers (n=26)						
N	0	0	3	23	4	22
%			11.5	88.5	15.4	84.6
Higher Education AT Faculty (n=24)						
N	0	0	0	24	7	17
%				100.0	29.2	70.8
Totals (N=120)						
N	0	0	8	112	17	103
%			6.7	93.3	14.2	85.8

Table E15. Responses to Quality Indicator 14 by Group

(Assistive technology assessment **procedures** are clearly defined and consistently used.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	3	20	2	21
%			13.0	87.0	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	3	20	1	22
%			13.0	97.0	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	1	23	2	22
%			4.2	95.8	8.3	91.7
AT Policy Makers (n=26)						
N	0	0	2	24	0	26
%			7.7	92.3		100
Higher Education AT Faculty (n=24)						
N	0	0	4	20	3	21
%			16.7	83.3	12.5	87.5
Totals (N=120)						
N	0	0	13	107	8	112
%			10.8	89.2	6.7	93.3

Table E16. Responses to Quality Indicator 15 by Group

(Assistive technology assessments are conducted by a **multidisciplinary team that actively involves the student and family** or caregivers.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	1	0	2	20	4	19
%	4.3		8.7	87.0	17.4	82.6
District & Regional AT Leaders (n=23)						
N	0	0	0	23	1	22
%				100.0	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	1	23	3	21
%			4.2	95.8	12.5	87.5
AT Policy Makers (n=26)						
N	0	0	2	24	1	25
%			7.7	92.3	3.8	96.2
Higher Education AT Faculty (n=24)						
N	1	0	4	19	2	22
%	4.2		16.7	72.9	8.3	91.7
Totals (N=120)						
N	2	0	9	109	11	109
%	01.7		7.5	90.8	9.2	90.8

Table E17. Responses to Quality Indicator 16 by Group

(Assistive technology assessments are conducted in the student’s **customary environments**.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	2	20	5	18
%		4.3	8.7	87.0	21.7	78.3
District & Regional AT Leaders (n=23)						
N	0	0	1	22	0	23
%			4.3	95.7		100.0
State & National AT Leaders (n=24)						
N	0	0	3	21	1	23
%			12.5	87.5	4.2	95.8
AT Policy Makers (n=26)						
N	0	0	4	22	1	25
%			15.4	84.6	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	6	18	2	22
%			25.0	75.0	8.3	91.7
Totals (N=120)						
N	0	1	16	103	9	111
%		0.08	13.3	85.8	7.5	92.5

Table E18. Responses to Quality Indicator 17 by Group

(Assistive technology assessments, including needed trials, are completed within **reasonable time lines.**)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	2	20	4	19
%		4.3	8.7	87.0	17.4	82.6
District & Regional AT Leaders (n=23)						
N	0	0	6	17	4	19
%			26.1	73.9	17.4	82.6
State & National AT Leaders (n=24)						
N	0	0	4	20	3	21
%			16.7	83.3	12.5	87.5
AT Policy Makers (n=26)						
N	0	0	2	24	2	24
%			7.7	92.3	7.7	92.3
Higher Education AT Faculty (n=24)						
N	0	0	5	19	2	22
%			20.8	79.2	8.3	91.7
Totals (N=120)						
N	0	1	19	100	15	105
%		0.8	15.8	83.3	12.5	87.5

Table E19. Responses to Quality Indicator 18 by Group

(Recommendations from assistive technology assessments are **based on data** about the student, environments and tasks.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	1	21	3	20
%		4.3	4.3	91.3	13.0	87.0
District & Regional AT Leaders (n=23)						
N	0	0	0	23	1	22
%				100.0	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	1	23	2	22
%			4.2	95.8	8.3	91.7
AT Policy Makers (n=26)						
N	0	0	0	26	1	25
%				100.0	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	1	23	6	18
%			4.2	95.8	25.0	75.0
Totals (N=120)	0	1	3	116	13	107
		0.8	2.5	96.7	10.8	89.2
N	0	1	1	21	3	20
%		4.3	4.3	91.3	13.0	87.0

Table E20. Responses to Quality Indicator 19 by Group

(The assessment provides the IEP team with **documented recommendations** about assistive technology devices and services.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	3	20	3	20
%			13.0	87.0	13.0	87.0
District & Regional AT Leaders (n=23)						
N	0	0	2	21	2	21
%			8.7	91.3	8.7	91.3
State & National AT Leaders (n=24)						
N	0	0	1	23	4	20
%			4.2	95.8	16.7	83.3
AT Policy Makers (n=26)						
N	0	0	1	25	0	26
%			3.8	96.2		100.0
Higher Education AT Faculty (n=24)						
N	0	0	2	22	3	21
%			8.3	91.7	12.5	87.5
Totals (N=120)						
N	0	0	9	111	12	108
%			7.5	92.5	10.0	90.0

Table E21. Responses to Quality Indicator 20 by Group

(Assistive technology needs are **reassessed by request or as needed** based on changes in the student, environments and/or tasks.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	0	23	2	21
%				100.0	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	1	22	0	23
%			4.3	95.7		100.0
State & National AT Leaders (n=24)						
N	0	0	4	20	4	20
%			16.7	83.3	16.7	83.3
AT Policy Makers (n=26)						
N	0	0	1	25	2	24
%			3.8	96.2	7.7	92.3
Higher Education AT Faculty (n=24)						
N	0	0	1	23	5	19
%			4.2	95.8	20.8	79.2
Totals (N=120)						
N	0	0	7	113	13	107
%			5.8	94.2	10.8	89.2

Table E22. Responses to Quality Indicator 21 by Group

(The education agency **has guidelines for documenting** assistive technology needs in the IEP and everyone on the IEP team is aware of them.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	5	18	2	21
%			21.7	78.3	8.7	91.3
District & Regional AT Leaders (n=23)						
N	1	0	2	20	1	22
%	4.3		8.7	87.0	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	3	21	1	23
%			12.5	87.5	4.2	95.8
AT Policy Makers (n=26)						
N	0	1	1	24	1	25
%		3.8	3.8	92.3	3.8	96.2
Higher Education AT Faculty (n=24)						
N	1	0	4	19	3	21
%	4.2		16.7	79.2	12.5	87.5
Totals (N=120)						
N	2	1	15	102	8	112
%	1.7	0.8	12.5	85.0	6.7	93.3

Table E23. Responses to Quality Indicator 22 by Group

(Assistive technology is included in the IEP in a manner that provides a **clear and complete description** of the devices and services to be provided and used.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	4	19	6	17
%			17.4	82.6	26.1	73.9
District & Regional AT Leaders (n=23)						
N	0	0	2	21	1	22
%			8.7	91.3	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	0	24	2	22
%				100.0	8.3	91.7
AT Policy Makers (n=26)						
N	0	0	1	25	3	23
%			3.8	96.2	11.5	88.5
Higher Education AT Faculty (n=24)						
N	0	0	3	21	5	19
%			12.5	87.5	20.8	79.2
Totals (N=120)						
N	0	0	10	110	17	103
%			8.3	91.7	14.2	85.8

Table E24. Responses to Quality Indicator 23 by Group

(Assistive technology is used as a **tool to support achievement of IEP goals and objectives** as well as participation and progress in the general curriculum.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	4	19	3	20
%			17.4	82.6	13.0	87.0
District & Regional AT Leaders (n=23)						
N	0	0	2	21	4	19
%			8.7	91.3	17.4	82.6
State & National AT Leaders (n=24)						
N	0	0	0	24	2	22
%				100.0	8.3	91.7
AT Policy Makers (n=26)						
N	0	1	2	23	2	24
%		3.8	7.7	88.5	7.7	92.3
Higher Education AT Faculty (n=24)						
N	0	1	2	21	2	22
%		4.2	8.3	87.5	8.3	91.7
Totals (N=120)						
N	0	2	10	108	13	107
%		1.7	8.3	90.0	10.8	89.2

Table E25. Responses to Quality Indicator 24 by Group

(IEP content regarding assistive technology use is written in language that describes **measurable and observable outcomes.**)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	2	20	6	17
%		4.3	8.7	87.0	26.1	73.9
District & Regional AT Leaders (n=23)						
N	0	1	2	20	2	21
%		4.3	8.7	87.0	8.7	91.3
State & National AT Leaders (n=24)						
N	0	1	3	20	3	21
%		4.2	12.5	83.3	12.5	87.5
AT Policy Makers (n=26)						
N	0	1	1	24	2	24
%		3.8	3.8	92.3	7.7	92.3
Higher Education AT Faculty (n=24)						
N	0	0	6	18	4	20
%			25.0	75.0	16.7	83.3
Totals (N=120)						
N	0	4	14	102	17	103
%		3.3	11.7	85.0	14.2	85.8

Table E26. Responses to Quality Indicator 25 by Group

(All **services** needed to implement assistive technology use are documented in the IEP.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	2	21	2	21
%			8.7	91.3	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	3	20	2	21
%			13.0	87.0	8.7	91.3
State & National AT Leaders (n=24)						
N	0	0	2	22	3	21
%			8.3	91.7	12.5	87.5
AT Policy Makers (n=26)						
N	0	1	0	25	1	25
%		3.8		96.2	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	5	19	3	21
%			20.8	79.2	12.5	87.5
Totals (N=120)						
N	0	1	12	107	11	109
%		0.8	10.0	89.2	9.2	90.8

Table E27. Responses to Quality Indicator 26 by Group

(Assistive technology implementation proceeds according to a **collaboratively developed plan.**)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	5	18	4	19
%			21.7	78.3	17.4	82.6
District & Regional AT Leaders (n=23)						
N	0	0		23	1	22
%			0	100.0	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	1		1	23
%			4.2	23	4.2	95.8
95.8						
AT Policy Makers (n=26)						
N	1	0	4	21	1	25
%	3.8		15.4	80.8	3.8	100
Higher Education AT Faculty (n=24)						
N	0	2	4	18	0	24
%		8.3	16.7	75.0		100.0
Totals (N=120)						
N	1	2	14	103	7	113
%	0.8	1.7	11.7	85.8	5.8	94.2

Table E28. Responses to Quality Indicator 27 by Group

(Assistive technology is **integrated** into the curriculum and daily activities of the student.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	0	23	1	22
%				100.0	4.3	95.7
District & Regional AT Leaders (n=23)						
N	0	0	0	23	1	22
%				100.0	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	1	23	2	22
%			4.2	95.8	8.3	91.7
AT Policy Makers (n=26)						
N	0	0	0	26	1	25
%				100.0	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	1	0	23	2	22
%		4.2		95.8	8.3	91.7
Totals (N=120)						
N		1	1	118	7	113
%	0	0.8	0.8	98.3	5.8	94.2

Table E29. Responses to Quality Indicator 28 by Group

(Team members in all of the child's environments **share responsibility** for implementation of the plan.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	2	21	0	23
%			8.7	91.3		100
District & Regional AT Leaders (n=23)						
N	0	0	3	20	1	22
%			13.0	87.0	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	3	21	1	23
%			12.5	87.5	4.2	95.8
AT Policy Makers (n=26)						
N	0	0	1	25	5	21
%			3.8	96.2	19.2	80.5
Higher Education AT Faculty (n=24)						
N	0	0	5	19	7	17
%			20.8	79.2	29.2	70.8
Totals (N=120)						
N	0	0	14	106	14	106
%			11.7	83.3	11.7	88.3

Table E30. Responses to Quality Indicator 29 by Group

(The student uses **multiple strategies to accomplish tasks** and the use of assistive technology may be included in those strategies.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	1	0	2	20	4	19
%	4.3		8.7	87.0	17.4	82.6
District & Regional AT Leaders (n=23)						
N	0	0	1	22	2	21
%			4.3	95.7	8.7	91.3
State & National AT Leaders (n=24)						
N	1	0	1	22	1	23
%	4.3		4.2	91.7	4.2	95.8
AT Policy Makers (n=26)						
N	1	2	4	19	6	20
%	3.8	7.7	15.4	73.1	23.1	76.9
Higher Education AT Faculty (n=24)						
N	2	2	3	17	6	18
%	8.3	8.3	12.5	70.8	25.0	75.0
Totals (N=120)						
N	5	4	11	100	19	101
%	4.2	3.3	9.2	83.3	15.8	84.2

Table E31. Responses to Quality Indicator 30 by Group

(**Training** for student, family and staff is an integral part of implementation.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	0	23	2	21
%				100.0	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	0	23	1	22
%				100.0	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	0	24	1	23
%				100.0	4.2	95.8
AT Policy Makers (n=26)						
N	0	0	0	26	1	25
%				100.0	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	2	22	1	23
%			8.3	91.7	4.2	95.8
Totals (N=120)						
N	0	0	2	118	6	114
%			1.7	98.3	5.0	95.0

Table E32. Responses to Quality Indicator 31 by Group

(Assistive technology implementation is initially based on assessment **data** and is adjusted based on performance data.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	5	17	2	21
%		4.3	21.7	73.9	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	1	22	1	22
%			4.3	95.7	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	1	23	2	22
%			4.2	95.8	8.3	91.7
AT Policy Makers (n=26)						
N	1	0	1	24	0	26
%	3.8		3.8	92.3		100.0
Higher Education AT Faculty (n=24)						
N	1	0	2	21	4	20
%	4.2		8.3	87.5	16.7	83.3
Totals (N=120)						
N	2	1	10	107	9	111
%	1.7	0.8	8.3	89.2	7.5	92.5

Table E33. Responses to Quality Indicator 32 by Group

(Assistive technology implementation includes **management and maintenance of equipment and materials.**)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	0	0	23	3	20
%				100.0	13.0	87.0
District & Regional AT Leaders (n=23)						
N	0	0	2	21	1	22
%			8.7	91.3	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	1	23	1	23
%			4.2	95.8	4.2	95.8
AT Policy Makers (n=26)						
N	0	0	2	24	1	25
%			7.7	92.3	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	2	22	0	24
%			8.3	91.7		100.0
Totals (N=120)						
N	0	0	7	113	6	114
%			5.8	94.2	5.0	95.0

Table E34. Responses to Quality Indicator 33 by Group

(Team members **share clearly defined responsibilities** to ensure that data are collected, evaluated, and interpreted by capable and credible team members.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	1	0	4	18	1	22
%	4.3		17.4	78.3	4.3	95.7
District & Regional AT Leaders (n=23)						
N	0	0	2	21	1	22
%			8.7	91.3	4.3	95.7
State & National AT Leaders (n=24)						
N	0	1	2	21	2	22
%		4.2	8.3	87.5	8.3	91.7
AT Policy Makers (n=26)						
N	0	0	5	21	2	24
%			19.2	80.8	7.7	92.3
Higher Education AT Faculty (n=24)						
N	0	0	5	19	3	21
%			20.8	79.2	12.5	87.5
Totals (N=120)						
N	1	1	18	100	9	111
%	0.8	0.8	15.0	83.3	7.5	92.5

Table E35. Responses to Quality Indicator 34 by Group

(Data are collected on specific student behaviors that have been identified by the team and are **related to one or more goal.**)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	4	18	2	21
%		4.3	17.4	78.3	8.7	91.3
District & Regional AT Leaders (n=23)						
N	0	0	1	22	5	18
%			4.3	95.7	21.7	78.3
State & National AT Leaders (n=24)						
N	0	0	6	18	2	22
%			25.0	75.0	8.3	91.7
AT Policy Makers (n=26)						
N	0	1	1	24	1	25
%		3.8	3.8	92.3	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	4	20	3	21
%			16.7	83.3	12.5	87.5
Totals (N=120)						
N	0	2	16	102	13	107
%		1.7	13.3	85.0	10.8	89.2

Table E36. Responses to Quality Indicator 35 by Group

(Evaluation of effectiveness reflects the **objective measurement** of changes in the student’s performance - e.g. student preferences, productivity, participation, independence, quantity, quality, speed, accuracy, frequency, or spontaneity).

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N						
%						
District & Regional AT Leaders (n=23)						
N	0	1	4	18	3	20
%		4.3	17.4	78.3	13.0	87.0
State & National AT Leaders (n=24)						
N	0	0	3	20	1	22
%			13.0	87.0	4.3	95.7
AT Policy Makers (n=26)						
N	0	0	2	22	1	23
%			8.3	91.7	4.2	95.8
Higher Education AT Faculty (n=24)						
N	0	0	1	25	0	26
%			3.8	96.2		100.0
Totals (N=120)						
N	0	0	1	23	3	21
%			4.2	95.8	12.5	87.5

Table E37. Responses to Quality Indicator 36 by Group

(Effectiveness is evaluated **across environments** including during naturally occurring opportunities as well as structured activities.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	3	19	4	19
%		4.3	13.0	82.6	17.4	82.6
District & Regional AT Leaders (n=23)						
N	0	0	5	18	0	23
%			21.7	78.3		100.0
State & National AT Leaders (n=24)						
N	0	0	1	23	1	23
%			4.2	95.8	4.2	95.8
AT Policy Makers (n=26)						
N	0	0	2	24	0	26
%			7.7	92.3		100.0
Higher Education AT Faculty (n=24)						
N	0	0	5	19	2	22
%			20.8	79.2	8.3	91.7
Totals (N=120)						
N	0	1	16	103	7	113
%		0.8	13.3	85.8	5.8	94.2

Table E38. Responses to Quality Indicator 37 by Group

(Evaluation of effectiveness is a dynamic, responsive, **ongoing process** that is reviewed periodically.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	2	20	4	19
%		4.3	8.7	87.0	17.4	82.6
District & Regional AT Leaders (n=23)						
N	0	0	0	23	1	22
%				100.0	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	3	21	1	23
%			12.5	87.5	4.2	95.8
AT Policy Makers (n=26)						
N	0	0	3	23	1	25
%			11.5	88.5	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	3	21	0	24
%			12.5	87.5		100.0
Totals (N=120)						
N	0	1	11	108	7	113
%		0.8	9.2	90.0	5.8	9.2

Table E39. Responses to Quality Indicator 38 by Group

(Data collected provide a means to analyze response patterns and student performance.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	7	15	4	19
%		4.3	30.4	65.2	17.4	82.6
District & Regional AT Leaders (n=23)						
N	0	0	5	18	2	21
%			21.7	78.3	8.7	91.3
State & National AT Leaders (n=24)						
N	2	0	2	20	6	18
%	8.3		8.3	83.3	25.0	75.0
AT Policy Makers (n=26)						
N	0	2	4	20	3	23
%		7.7	15.4	76.9	11.5	88.5
Higher Education AT Faculty (n=24)						
N	3	1	4	16	6	18
%	12.5	4.2	16.7	66.7	25.0	75.0
Totals (N=120)						
N	5	4	22	89	21	99
%	4.2	3.3	18.3	74.2	17.5	82.5

Table E40. Responses to Quality Indicator 39 by Group

(The team makes **changes** in the student’s educational program **based on data**.)

	Importance of Quality Indicator				Clarity of Intent Statement	
	Unknown	Not Important	Somewhat Important	Very Important	Unclear	Clear
AT Consumers & Families (n=23)						
N	0	1	4	18	3	20
%		4.3	17.4	78.3	13.0	87.0
District & Regional AT Leaders (n=23)						
N	1	0	1	21	1	22
%	4.3		4.3	91.3	4.3	95.7
State & National AT Leaders (n=24)						
N	0	0	0	24	2	22
%				100.0	8.3	91.7
AT Policy Makers (n=26)						
N	0	0	1	25	1	25
%			3.8	96.2	3.8	96.2
Higher Education AT Faculty (n=24)						
N	0	0	2	22	1	23
%			8.3	91.7	4.2	95.8
Totals (N=120)						
N	1	1	8	110	8	112
%	0.8	0.8	6.7	91.7	6.7	93.3

**Table E41. Responses to Usefulness of
Quality Indicators for Assistive Technology Services by Group
(QIAT)**

	Usefulness of QIAT			
	Usefulness Unknown	Not Useful	Somewhat Usefulness	Very Useful
AT Consumers & Families (n=23)				
N	0	0	9	14
%			17.3	78.3
District & Regional AT Leaders (n=23)				
N	0	0	2	21
%			8.6	91.3
State & National AT Leaders (n=24)				
N	0	0	5	19
%			28.8	79.2
AT Policy Makers (n=26)				
N	1	0	15.4	22
%				84.6
Higher Education AT Faculty (n=24)				
N	0	0	6	18
%			20.8	79.2
Totals (N=120)				
N	1	0	25	94
%	0.8		20.8	78.3

APPENDIX F

New Areas of QIAT in 2003

**Assistive Technology in Transition
and
Assistive Technology Professional Development and Training**

Quality Indicators for Assistive Technology Transition
(NEW AREA, 2003)

Transition plans for students who use assistive technology address the ways the student's use of assistive technology devices and services are transferred from one setting to another. Assistive technology transition involves people from different classrooms, programs, buildings, or agencies working together to ensure continuity. Self-advocacy, advocacy and implementation are critical issues for transition planning.

- 1. Transition plans address assistive technology needs of the student, including roles and training needs of team members, subsequent steps in assistive technology use, and follow-up after transition takes place.**

Intent: The transition plan assists the receiving agency/team to successfully provide needed supports for the AT user. This involves the assignment of responsibilities and the establishment of accountability.

- 2. Transition planning empowers the student using assistive technology to participate in the transition planning at a level appropriate to age and ability.**

Intent: Specific self-determination skills are taught that enable the student to gradually assume responsibility for participation and leadership in AT transition planning as capacity develops. AT tools are provided, as needed, to support the student's participation.

- 3. Advocacy related to assistive technology use is recognized as critical and planned for by the teams involved in transition.**

Intent: Everyone involved in transition advocates for the student's progress, including the student's use of AT. Specific advocacy tasks related to AT use are addressed and may be carried out by the student, the family, staff members or a representative.

- 4. AT requirements in the receiving environment are identified during the transition planning process.**

Intent: Environmental requirements, skill demands and needed AT support are determined in order to plan appropriately. This determination is made collaboratively and with active participation by representatives from sending and receiving environments.

5. Transition planning for students using assistive technology proceeds according to an individualized timeline.

Intent: Transition planning timelines are adjusted based on specific needs of the student and differences in environments. Timelines address well mapped action steps with specific target dates and ongoing opportunities for reassessment.

6. Transition plans address specific equipment, training and funding issues such as transfer or acquisition of assistive technology, manuals and support documents.

Intent: A plan is developed to ensure that the AT equipment, hardware, and/or software arrives in working condition accompanied by any needed manuals. Provisions for ongoing maintenance and technical support are included in the plan.

COMMON ERRORS:

1. Lack of self-determination, self-awareness and self-advocacy on part of the individual with a disability (and/or advocate).
2. Lack of adequate long range planning on part of sending and receiving agencies (timelines).
3. Inadequate communication and coordination.
4. Failure to address funding responsibility.
5. Inadequate evaluation (documentation, data, communication, valued across settings) process.
6. Philosophical differences between sending and receiving agencies.
7. Lack of understanding of the law and of their own responsibilities.

Quality Indicators for Professional Development and Training in Assistive Technology **(NEW AREA, 2003)**

This area defines the critical elements of quality professional development and training in assistive technology. Assistive technology professional development and training efforts should arise out of an ongoing, well-defined, sequential and comprehensive plan. Such a plan can develop and maintain the abilities of individuals at all levels of the organization to participate in the creation and provision of quality AT services. The goal of assistive technology professional development and training is to increase educators' knowledge and skills in a variety of areas including, but not limited to: collaborative processes; a continuum of tools, strategies, and services; resource; legal issues; action planning; and data collection and analysis. Audiences for professional development and training include: students, parents or caregivers, special education teachers, educational assistants, support personnel, general education personnel, administrators, AT specialists, and others involved with students.

- 1. Comprehensive assistive technology professional development and training support the understanding that assistive technology devices and services enable students to accomplish IEP goals and objectives and make progress in the general curriculum.**

Intent: The Individuals with Disabilities Education Act (IDEA) requires the provision of a free and appropriate public education (FAPE) for all children with disabilities. The Individualized Education Plan (IEP) defines FAPE for each student. The use of AT enables students to participate in and benefit from FAPE. The focus of all AT Professional Development and training activities is to increase the student's ability to make progress in the general curriculum and accomplish IEP goals and objectives.

- 2. The education agency has an AT professional development and training plan that identifies the audiences, the purposes, the activities, the expected results, evaluation measures and funding for assistive technology professional development and training.**

Intent: The opportunity to learn the appropriate techniques and strategies is provided for each person involved in the delivery of assistive technology services. Professional development and training are offered at a variety of levels of expertise and are pertinent to individual roles.

- 3. The content of comprehensive AT professional development and training addresses all aspects of the selection, acquisition and use of assistive technology.**

Intent: AT professional development and training address the development of a wide range of assessment, collaboration and implementation skills that enable educators to provide effective AT interventions for students. The AT professional development and training plan includes, but is not limited to: collaborative processes; the continuum of tools, strategies and services; resources; legal issues; action planning; and data collection.

- 4. AT professional development and training address and are aligned with other local, state and national professional development initiatives.**

Intent: Many of the effective practices used in the education of children with disabilities can be enhanced by the use of assistive technology. The functional use of AT is infused into all professional development efforts.

5. Assistive technology professional development and training include ongoing learning opportunities that utilize local, regional, and/or national resources.

Intent: Professional development and training opportunities enable individuals to meet present needs and increase their knowledge of AT for use in future. Training in AT occurs frequently enough to address new and emerging technologies and practices and is available on a repetitive and continuous schedule. A variety of AT professional development and training resources are used.

6. Professional Development and Training in assistive technology follow research-based models for adult learning that include multiple formats and are delivered at multiple skill levels.

Intent: The design of Professional Development and Training for AT recognizes adults as diverse learners who bring various levels of prior knowledge and experience to the training and can benefit from differentiated instruction using a variety of formats and diverse timeframes (e.g., workshops, distance learning, follow-up assistance, ongoing technical support).

7. The effectiveness of assistive technology professional development and training is evaluated by measuring changes in practice that result in improved student performance.

Intent: Evidence is collected regarding the results of AT professional development and training. The professional development and training plan is modified based on these data in order to ensure changes educational practice that result in improved student performance.

COMMON ERRORS:

1. The educational agency does not have a comprehensive plan for ongoing AT professional development and training.
2. The educational agency's plan for professional development and training is not based on AT needs assessment and goals.
3. Outcomes for professional development are not clearly defined and effectiveness is not measured in terms of practice and student performance.
4. A continuum of ongoing professional development and training is not available.
5. Professional development and training focuses on the tools and not the process related to determining student needs and integrating technology into the curriculum.
6. Professional development and training is provided for special educators but not for administrators, general educators and instructional technology staff.

APPENDIX G

Quality Indicators for Assistive Technology Services

**Suggested revisions to the six areas of QIAT
included in this investigation**

QUALITY INDICATORS FOR ASSISTIVE TECHNOLOGY SERVICES

SUGGESTED REVISIONS, 2004

The consideration of assistive technology (AT) devices and services is required during the development of every Individualized Educational Program (IEP) and every Individual Family Service Plan (IFSP) for children from birth to school age. The Individuals with Disabilities Education Act of 1997 (IDEA '97) requires that each team that plans for the education of a child with a disability document any AT devices and/or services the child may need. Despite this requirement, there has been no agreed upon description of high quality AT services by which schools can measure their compliance.

Since the summer of 1998, the Quality Indicators for Assistive Technology (QIAT) Consortium has focused its efforts on defining a set of descriptors that could serve as overarching guidelines for quality AT services. The Consortium has attempted to develop descriptors that are applicable regardless of service delivery models. It is the belief of the Consortium that these descriptors can be used to guide:

1. School districts in the development and provision of quality AT services which are aligned to federal, state and local mandates;
2. AT service providers in the evaluation and improvement of their services;
3. Consumers of AT services in the selection of adequate AT services;
4. University faculty and professional development providers in the delivery of programs that develop knowledge and skills needed to offer quality AT services;
5. Leaders in the development of regulations and policies related to the use of AT in education.

When reviewing or using the Quality Indicators for Assistive Technology, it is important to be aware of some basic assumptions that pertain to all areas of QIAT technology. First, it is essential that ALL AT services developed and delivered by states or districts are legally correct according to the mandates and expectations of federal and state laws and are aligned to district policies. Second, AT efforts, at all stages, involves on-going collaborative work by teams which include families and caregivers, school personnel, and other needed individuals and service agencies. Third multidisciplinary team members involved in AT processes are responsible for following the code of ethics for their specific profession.

Note: IDEA '97 requires that AT devices and services be provided for all children with disabilities who need them. This applies to children from birth to twenty-one years of age. In the following document, when the term IEP is used, the reader can assume that the indicator also applies to IFSPs unless otherwise indicated.

Quality Indicators for Consideration of Assistive Technology Needs

Consideration of the need for AT devices and services is an integral part of the educational process identified by IDEA '97 for referral, evaluation, and IEP development. Although AT is considered at all stages of the process, the Consideration Quality Indicators are specific to the consideration of AT in the development of the IEP as mandated by IDEA '97. In most instances, the Quality Indicators are also appropriate for the consideration of AT for students who qualify for services under other legislation (e.g. 504, ADA).

- 1. Assistive technology devices and services are considered for all students with disabilities regardless of type or severity of disability.**

Intent: Consideration of assistive technology need is required by IDEA '97 and is based on the unique educational needs of the student. Students are not excluded from consideration of AT for any reason. (e.g. type of disability, age, administrative concerns, etc.)

- 2. During the development of the individualized educational program, the IEP team consistently uses a collaborative decision-making process that supports systematic consideration of each student's possible need for assistive technology devices and services.**

Intent: A collaborative process that ensures that all IEP teams effectively consider the assistive technology of students is defined, communicated, and consistently used throughout the agency. Processes may vary from agency to agency to most effectively address student needs under local

- 3. Quality Indicator: IEP team members have the collective knowledge and skills needed to make informed assistive technology decisions and seek assistance when needed.**

Intent: IEP team members combine their knowledge and skills to determine if assistive technology devices and services are needed to remove barriers to student performance. When the assistive technology needs are beyond the knowledge and scope of the IEP team, additional resources and support are sought.

- 4. Decisions regarding the need for assistive technology devices and services are based on the student's IEP goals and objectives, access to curricular and extracurricular activities, and progress in the general education curriculum.**

Intent: As the IEP team determines the tasks the student needs to complete and develops the goals and objectives, the team considers whether assistive technology is required to accomplish those tasks.

5. The IEP team **gathers and analyzes data** about the student, customary environments, educational goals, and tasks when considering a student's need for assistive technology devices and services.

Intent: The IEP team shares and discusses information about the student's present levels of achievement in relationship to the environments, and tasks to determine if the student requires assistive technology devices and services to participate actively, work on expected tasks, and make progress toward mastery of educational goals

6. When assistive technology is needed, the IEP team **explores a range of assistive technology devices, services, and other supports that address identified needs.**

Intent: The IEP team considers various supports and services that address the educational needs of the student and may include no tech, low tech, mid-tech and/or high tech solutions and devices. IEP team members do not limit their thinking to only those devices and services currently available within the district.

7. The assistive technology consideration process and **results are documented in the IEP and include a rationale for the decision and supporting evidence.**

Intent: Even though IEP documentation may include a checkbox verifying that assistive technology has been considered, the reasons for the decisions and recommendations should be clearly stated. Supporting evidence may include the results of assistive technology assessments, data from device trials, differences in achievement with and without assistive technology, student preferences for competing devices, and teacher observations, among others.

COMMON ERRORS:

1. AT is considered for students with severe disabilities only.
2. No one on the IEP team is knowledgeable regarding AT.
3. Team does not use a consistent process based on data about the student, environment and tasks to make decisions.
4. Consideration of AT is limited to those items that are familiar to team members or are available in the district.
5. Team members fail to consider access to the curriculum and IEP goals in determining if AT is required in order for the student to receive FAPE.
6. If AT is not needed, team fails to document the basis of its decisions.

Quality Indicators for Assessment of Assistive Technology Needs

Quality Indicators for Assessment of Assistive Technology Needs is a process conducted by a team, used to identify tools and strategies to address a student's specific need(s). The issues that lead to an AT assessment may be very simple and quickly answered or more complex and challenging. Assessment takes place when these issues are beyond the scope of the problem solving that occurs as a part of normal service delivery.

1. Procedures for all aspects of assistive technology assessment are clearly defined and consistently applied.

Intent: Throughout the educational agency, personnel are well informed and trained about assessment procedures and how to initiate them. There is consistency throughout the agency in the conducting of assistive technology assessments. Procedures may include—but are not limited to—initiating an assessment, planning and conducting an assessment, conducting trials, reporting results, and resolving conflicts.

2. Assistive technology assessments are conducted by a team with the collective knowledge and skills needed to determine possible assistive technology solutions that address the needs and abilities of the student, demands of the customary environments, educational goals, and related activities.

Intent: Team membership is flexible and varies according to the knowledge and skills needed to address student needs. The student and family are active team members. Various team members bring different information and strengths to the assessment process.

3. All assistive technology assessments include a functional assessment in the student's customary environments, such as the classroom, lunchroom, playground, home, community setting, or work place.

Intent: The assessment process includes activities that occur in the student's current or anticipated environments because characteristics and demands in each may vary. Team members work together to gather specific data and relevant information in identified environments to contribute to assessment decisions.

4. Assistive technology assessments, including needed trials, are completed within reasonable time lines.

Intent: Assessments are initiated in a timely fashion and proceed according to a timeline that the IEP team determines to be reasonable based on the complexity of student needs and assessment questions. Timelines comply with applicable state and agency requirements.

5. Recommendations from assistive technology assessments are based on data about the student, environments and tasks.

Intent: The assessment includes information about the student's needs and abilities, demands of various environments, educational tasks, and objectives. Data may be gathered from sources such as student performance records, results of experimental trials, direct observation, interviews with students or significant others, and anecdotal records.

6. The assessment provides the IEP team with clearly documented recommendations that guide decisions about the selection, acquisition, and use of assistive technology devices and services.

Intent: A written rationale is provided for any recommendations that are made. Recommendations may include assessment activities and results, suggested devices and alternative ways of addressing needs, services required by the student and others, and suggested strategies for implementation and use.

7. Assistive technology needs are reassessed any time changes in the student, the environments and/or the tasks result in the student's needs not being met with current devices and/or services.

Intent: An assistive technology assessment is available any time it is needed due to changes that have affected the student. The assessment can be requested by the parent or any other member of the IEP team.

COMMON ERRORS

1. Procedures for conducting AT assessment are not defined, or are not customized to meet the student's needs.
2. A team approach to assessment is not utilized.
3. Individuals participating in an assessment do not have the skills necessary to conduct the assessment, and do not seek additional help.
4. Team members do not have adequate time to conduct assessment processes, including necessary trials with AT.
5. Communication between team members is not clear.
6. The student is not involved in the assessment process.
7. When the assessment is conducted by any team other than the student's IEP team, the needs of the student or expectations for the assessment are not communicated.

Quality Indicators for Including Assistive Technology in the IEP

The Individuals with Disabilities education Act of 1997 (IDEA '97) requires that the IEP team consider AT needs in the development of every Individualized Education Program (IEP). Once the IEP team has reviewed assessment results and determined that AT is needed for provision of a free, appropriate, public education (FAPE), it is important that the IEP document reflects the team's determination in as clear a fashion as possible. The Quality Indicators for AT in the IEP help the team describe the role of AT in the child's educational program.

- 1. The education agency has guidelines for documenting assistive technology needs in the IEP and requires their consistent application.**

Intent: The education agency provides guidance to IEP teams about how to effectively document assistive technology needs, devices, and services as a part of specially designed instruction, related services, or supplementary aids and services

- 2. All services that the IEP team determines are needed to support the selection, acquisition, and use of assistive technology devices are designated in the IEP.**

Intent: The provision of assistive technology services is critical to the effective use of assistive technology devices. It is important that the IEP describes the assistive technology services that are needed for student success. Such services may include evaluation, customization or maintenance of devices, coordination of services, and training for the student and family and professionals, among others.

- 3. The IEP illustrates that assistive technology is a tool to support achievement of goals and progress in the general curriculum by establishing a clear relationship between student needs, assistive technology devices and services, and the student's goals and objectives.**

Intent: Most goals are developed before decisions about assistive technology are made. However, this does not preclude the development of additional goals, especially those related specifically to the appropriate use of assistive technology.

- 4. IEP content regarding assistive technology use is written in language that describes how assistive technology contributes to achievement of measurable and observable outcomes.**

Intent: Content which describes measurable and observable outcomes for assistive technology use enables the IEP team to review the student's progress and determine whether the assistive technology has had the expected impact on student participation and achievement.

5. **Assistive technology is included in the IEP in a manner that provides a clear and complete description of the devices and services to be provided and used to address student needs and achieve expected results.**

Intent: IEPs are written so that participants in the IEP meeting and others who use the information to implement the student's program understand what technology is to be available, how it is to be used, and under what circumstances. "Jargon" should be avoided.

COMMON ERRORS:

1. IEP teams do not know how to include AT in IEPs.
2. IEPs including AT use a "formula" approach to documentation. All IEPs are developed in similar fashion and the unique needs of the child are not addressed.
3. AT is included in the IEP, but the relationship to goals and objectives is unclear.
4. AT devices are included in the IEP, but no AT services support the use.
5. AT expected results are not measurable or observable.

Quality Indicators for Assistive Technology Implementation

Assistive technology implementation pertains to the ways that assistive technology devices and services, as included in the IEP (including goals/objectives, related services, supplementary aids and services and accommodations or modifications) are delivered and integrated into the student's educational program. Assistive technology implementation involves people working together to support the student using assistive technology to accomplish expected tasks necessary for active participation and progress in customary educational environments.

1. Assistive technology implementation proceeds according to a collaboratively developed plan.

Intent: Following IEP development, all those involved in implementation work together to develop a written action plan that provides detailed information about how the AT will be used in specific educational settings, what will be done and who will do it.

2. Assistive technology is integrated into the curriculum and daily activities of the student across environments.

Intent: Assistive technology is used when and where it is needed to facilitate the student's access to, and mastery of, the curriculum. Assistive technology may facilitate active participation in educational activities, assessments, extracurricular activities, and typical routines.

3. Persons supporting the student across all environments in which the assistive technology is expected to be used share responsibility for implementation of the plan.

Intent: All persons who work with the student know their roles and responsibilities, are able to support the student using assistive technology, and are expected to do so.

4. Persons supporting the student provide opportunities for the student to use a variety of strategies—including assistive technology— and to learn which strategies are most effective for particular circumstances and tasks.

Intent: When and where appropriate, students are encouraged to consider and use alternative strategies to remove barriers to participation or performance. Strategies may include the student's natural abilities, use of assistive technology, other supports, or modifications to the curriculum, task or environment.

5. Training for the student, family and staff are an integral part of implementation.

Intent: Determination of the training needs of the student, staff, and family is based on how the assistive technology will be used in each unique environment. Training and technical assistance are planned and implemented as ongoing processes based on current and changing needs.

6. Assistive technology implementation is initially based on assessment data and is adjusted based on performance data.

Intent: Formal and informal assessment data guide initial decision-making and planning for AT implementation. As the plan is carried out, student performance is monitored and implementation is adjusted in a timely manner to support student progress.

7. Assistive technology implementation includes management and maintenance of equipment and materials.

Intent: For technology to be useful it is important that equipment management responsibilities are clearly defined and assigned. Though specifics may differ based on the technology, some general areas may include organization of equipment and materials; responsibility for acquisition, set-up, repair, and replacement in a timely fashion; and assurance that equipment is operational.

COMMON ERRORS

1. Implementation is expected to be smooth and effective without addressing specific components in a plan. Team members assume that everyone understands what needs to happen and knows what to do.
2. Plans for implementation are created and carried out by one IEP team member.
3. The team focuses on device acquisition and does not discuss implementation.
4. An implementation plan is developed that is incompatible with the instructional environments.
5. No one takes responsibility for the care and maintenance of AT devices and so they are not available or in working order when needed.
6. Contingency plans for dealing with broken or lost devices are not made in advance.

Quality Indicators for Evaluation of the Effectiveness of Assistive Technology

This area addresses the evaluation of the effectiveness of the AT devices and services that are provided to individual students. It includes data collection, documentation and analysis to monitor changes in student performance resulting from the implementation of assistive technology services. Student performance is reviewed in order to identify if, when, or where modifications and revisions to the implementation are needed.

- 1. Team members share clearly defined responsibilities to ensure that data are collected, evaluated, and interpreted by capable and credible team members.**

Intent: Each team member is accountable for ensuring that the data collection process determined by the team is implemented. Individual roles in the collection and review of the data are assigned by the team. Data collection, evaluation, and interpretation are led by persons with relevant training and knowledge. It can be appropriate for different individual team members to conduct these tasks.

- 2. Data are collected on specific student achievement that has been identified by the team and is related to one or more goals.**

Intent: In order to evaluate the success of assistive technology use, data are collected on various aspects of student performance and achievement. Targets for data collection include the student's use of assistive technology to progress toward mastery of relevant IEP and curricular goals and to enhance participation in extracurricular activities at school and in other environments.

- 3. Evaluation of effectiveness includes the quantitative and qualitative measurement of changes in the student's performance and achievement.**

Intent: Changes targeted for data collection are observable and measurable, so that data are as objective as possible. Changes identified by the IEP team for evaluation may include accomplishment of relevant tasks, how assistive technology is used, student preferences, productivity, participation, and independence, quality of work, speed and accuracy of performance, and student satisfaction, among others.

- 4. Effectiveness is evaluated across environments during naturally occurring and structured activities.**

Intent: Relevant tasks within each environment where the assistive technology is to be used are identified. Data needed and procedures for collecting those data in each environment are determined.

5. **Data are collected to provide teams with a means for analyzing student achievement and identifying supports and barriers that influence assistive technology use to determine what changes, if any, are needed.**

Intent: Teams regularly analyze data on multiple factors that may influence success or lead to errors in order to guide decision-making. Such factors include not only the student's understanding of expected tasks and ability to use assistive technology but also student preferences, intervention strategies, training, and opportunities to gain proficiency.

6. **Changes are made in the student's assistive technology services and educational program when evaluation data indicate that such changes are needed to improve student achievement.**

Intent: During the process of reviewing evaluation data, the team decides whether changes or modifications need to be made in the assistive technology, expected tasks, or factors within the environment. The team acts on those decisions and supports their implementation.

7. **Evaluation of effectiveness is a dynamic, responsive, ongoing process that is reviewed periodically.**

Intent: Scheduled data collection occurs over time and changes in response to both expected and unexpected results. Data collection reflects measurement strategies appropriate to the individual student's needs. Team members evaluate and interpret data during periodic progress reviews.

COMMON ERRORS:

1. An observable, measurable student behavior is not specified as a target for change.
2. Team members do not share responsibility for evaluation of effectiveness.
3. An environmentally appropriate means of data collection and strategies has not been identified.
4. A schedule of program review for possible modification is not determined before implementation begins.

Quality Indicators for Administrative Support of Assistive Technology Services

This area defines the critical areas of administrative support and leadership for developing and delivering assistive technology services. It involves the development of policies, procedures, and other supports necessary to sustain effective assistive technology programs.

- 1. The education agency has written procedural guidelines that ensure equitable access to assistive technology devices and services for students with disabilities, if required for a free, appropriate, public education (FAPE).**

Intent: Clearly written procedural guidelines help ensure that students with disabilities have the assistive technology devices and services they require for educational participation and benefit. Access to assistive technology is ensured regardless of severity of disability, educational placement, geographic location, or economic status.

- 2. Quality Indicator: The education agency broadly disseminates clearly defined procedures for accessing and providing assistive technology services and supports the implementation of those guidelines.**

Intent: Procedures are readily available in multiple formats to families and school personnel in special and general education. All are aware of how to locate the procedures and are expected to follow procedures whenever appropriate.

- 3. The education agency includes appropriate assistive technology responsibilities in written descriptions of job requirements for each position in which activities impact assistive technology services.**

Intent: Appropriate responsibilities and the knowledge, skills, and actions required to fulfill them are specified for positions from the classroom through the central office. These descriptions will vary depending upon the position and may be reflected in a position description, assignment of duty statement, or some other written description.

- 4. The education agency employs personnel with the competencies needed to support quality assistive technology services within their primary areas of responsibility at all levels of the organization.**

Intent: Although different knowledge, skills, and levels of understanding are required for various jobs, all understand and are able to fulfill their parts in developing and maintaining a collaborative system of effective assistive technology services to students.

5. The education agency includes assistive technology in the technology planning and budgeting process.

Intent: A comprehensive, collaboratively-developed technology plan provides for the technology needs of all students in general education and special education.

6. The education agency provides access to on-going learning opportunities about assistive technology for staff, family, and students.

Intent: Learning opportunities are based on the needs of the student, the family, and the staff and are readily available to all. Training and technical assistance include any topic pertinent to the selection, acquisition, or use of assistive technology or any other aspect of assistive technology service delivery.

7. The education agency uses a systematic process to evaluate all components of the agency-wide assistive technology program.

Intent: The components of the evaluation process include, but are not limited to, planning, budgeting, decision-making, delivering AT services to students, and evaluating the impact of AT services on student achievement. There are clear, systematic evaluation procedures that all administrators know about and use on a regular basis at central office and building levels.

COMMON ERRORS:

1. If policies and guidelines are developed, they are not known widely enough to assure equitable application by all IEP teams.
2. It is not clearly understood that the primary purpose of AT in school settings is to support the implementation of the IEP for the provision of a free, appropriate, public education (FAPE).
3. Personnel have been appointed to head AT efforts, but resources to support those efforts have not been allocated. (Time, a budget for devices, professional development, etc.)
4. AT leadership personnel try to or are expected to do all of the AT work and fail to meet expectations.
5. AT services are established but their effectiveness is never evaluated.

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