

NATRI Essential Element Delphi Study
The 63 Validated Essential Elements of Assistive Technology Assessments

Student Background Information

Background Information: Student

- 1 name
- 3 birth date/chronological age:
e.g., age at point of data collection (to include testing, assessment, etc.)
- 4 current services received by student:
e.g., type to include special education, general education, transition services, rehabilitation, physical therapy, occupational therapy, speech/language therapy, health services, psychological services, social services, orientation & mobility, medical technology, instructional technology, assistive technology, transportation; hours per week, frequency & duration; name of provider; locations of such services to include home, school, work, community, therapy, other
- 7 language used (participant-added element):
What is the child's primary/secondary language or method of communication in the home environment?

Background Information: Health/Medical

- 8 documented sensory impairments (participant-added element):
medically recognized sensory deficits or diagnoses; results of most recent exam

Background Information: Family

- 9 parents' names:
guardian/caregiver; primary contact & relationship (if appropriate)
- 10 contact information:
to include phone, voicemail, pager, fax, email, other (if appropriate)
- 11 home language (participant-added element):
primary and secondary language(s) spoken in the student's home; see also Background Information: Student: language used

Background Information: School

- 12 school/district:
name, system/district
- 13 primary school contact & current key educators & direct service providers:
name, specific contact information to include phone, voicemail, pager, fax, email; technology related skills

Background Information: Referral

- 2 referral date

- 6 IFSP/IEP goals and/or desired outcomes:
current existing & needed; short- & long-term educational, therapy, daily living, vocational, communication, recreation, social goals, objectives & outcomes; agreed upon by child/student; how technology can assist in meeting; clear & specific; attach copy of IEP/IFSP (if appropriate)
- 14 reason for referral:
specific reasons for assessment; e.g., detailed descriptions of major areas of concern related to student's ability to do expected tasks in customary environments; functional goals to be achieved/would technology assist the student in accessing/accomplishing required curricular tasks more easily and independently; what do want to learn regarding person's resources, abilities, needs; how might daily life change; intervention goals; family needs/goals
- 40 tasks (element category):
what specifically does the student need to be able to do that is difficult or impossible for him at this time and at the expected level of independence? What are the major areas of concern, which need to be addressed?

Background Information: Sensory

- 17 sensory (element category):
e.g., precautions and/or considerations related to student sensitivity & stimulation; vision, hearing, etc.
- 18 vision (element category):
e.g., last exam/report (date & information; documented impairment); strengths & limitations; to include acuity, correction, field loss; degree of functional vision (no functional, functional aided, normal, unknown); visual concerns (acuity, tracking, scanning, visual field/peripheral vision, nystagmus, strabismus, figure ground, color blindness); visual preferences/requirements (color, contrast, field); object placement; sensitivity
- 19 vision - adaptive/alternative input & output:
past, current, needed/potential; e.g., magnification; voice; Braille
- 20 hearing/auditory (element category):
e.g., date of most recent formal audiological test/screening; results based on formal/informal measures; to include if within normal range; degree of functional hearing; degree of hearing loss, unaided auditory skills, aided auditory skills; auditory preferences/requirements - volume, sound feedback, frequency, figure ground; response to sounds; discrepancy between receptive & expressive abilities; functionality, measurability, sensitivity
- 21 hearing/auditory - adaptive/alternative input & output:
past, current, needed/potential; e.g., FM system; vibration
- 22 Is vision an area of concern for this student? (participant-added element):
This seeks to determine whether or not a student's eyesight [sic] is an area of concern

Background Information: Skills & Abilities

63 student skills & abilities (element category):

e.g., what know - personal resources; current capabilities, skills, strengths; satisfaction with skills & development; difficulties & concerns; current & expected improvement or deterioration; incentives or disincentives; barriers to participation; assistance needed/level of independence; present level or performance

Background Information: Communication

23 receptive:

receptive language skills & abilities related to the task and functioning of the student using formal or informal (observations of present levels of functioning) measures (date, test, results included); include copy of SLP report if appropriate; strengths & limitations; e.g., functional requirement of environment; understanding of spoken & sign language; current level of language comprehension; anticipation of familiar routines; reaction to verbal commands within repertoire; reaction to gestures or signed directions; interactions, response to initiations

24 expressive (element category):

e.g., expressive language skills & abilities related to the task and functioning of the student using formal or informal (observations of present levels of functioning) measures (date, test, results included); include copy of SLP report if appropriate; strengths & limitations; to include functional requirement of environment; communication interactions; how indicate yes/no response, communicate thoughts, feelings, wants and/or needs, gain attention, request activity choice, request assistance when needed, express novel ideas, answer questions in class, complete academic assignments, provide social greetings/farewells, express comments, interact socially with peers, request objects, protest/reject, make choices, engage in turn taking, initiate

25 expressive - method/mode:

strengths & limitations; e.g., spoken, vocalizations, signed communication, gestures & number of gestures, hand/finger pointing, eye pointing, coding, facial expressions, pictures, scanning, alternative or augmentative communication system; Braille; intelligibility of communication mode

26 expressive - augmentative communication system:

current system; strengths & limitations; e.g., selection set - real objects, miniature objects, photographs, color pictures, black line drawings, symbols, words, other; primary or preferred mode of communication; access technique; voice recognition; needs related to devices/systems; typical communicative behavior

27 Is communication an area of concern for this student? (participant-added element):

This should be the first question in the communication skills section. If the answer is "yes", then answers to the rest of the questions in the section become essential. If the answer is "no" then they become irrelevant

Background Information: Learning/Cognition

28 cognitive skills & abilities:

e.g., identifies receptively, expressively; categorizes, sequences, associates, initiates, follows simple commands; attends; short-/long-term memory; problem solving; organization; indication of preferences; integration/assimilation of skills; comprehension (including listening comprehension); level of object representation; mental ability; learning speed/rate, difficulties in learning new; learning style; executive functions

29 Is cognition an area of concern for this student? (participant-added element):

This should be the first question in this section. If the answer is "yes", then seeking answers to subsequent questions is essential. If the answer is "no" then subsequent questions MAY be largely irrelevant

Background Information: Motor

30 motor (element category):

e.g., dates and results of motor assessment based on formal/informal measures (if appropriate); test results which indicate general functional development level; copy of physical & occupational therapy report(s) or summarization of; physical & functional abilities; means of control - dependence, assistance needed, independence

31 fine motor skills:

information from OT/PT &/or dates & results of most recent OT/PT exam; e.g., age appropriate skills; hand preference; wrist, thumb, finger movement; dexterity; grasping and holding; object manipulation; means of control in scribbling & drawing, handwriting & completing activities of daily living; most reliable motor responses; accuracy; direct selection abilities - size of grid, type/size of switch

32 gross motor – mobility:

means in which move within & between environment(s)/travel & satisfaction with; forms include ambulation, wheeled mobility - dependent (stroller), wheeled mobility - self-propelling, power mobility - scooter, power chair, alternate controls (non-joystick driving), etc.; community access to include private vehicle use and mass transportation

33 gross motor - postural stability:

specific strengths & limitations in a) sitting balance (unsupported seated position), range of motion, of pelvis, hips, knees, & spine to achieve balanced seating position; b) upper extremity and head control in balanced sitting position; c) muscle tone, coordination, range of motion, physical strength & comfort, trunk, neck & head control

34 Are motor abilities [sic] and movement areas of concern for this student? (participant-added element):

This should be the first question in this section. If the answer is "yes", then seeking answers to subsequent questions becomes very important. If the answer is "no" then the subsequent [sic] questions become largely irrelevant

Background Information: Psychological/Social/Emotional

35 Are there psychological, social, or emotional concerns related to this student? (participant-added element):

This should be the first question in this section. If the answer is \"yes\", then seeking answers to subsequent questions is essential. If the answer is \"no\" then subsequent questions MAY be largely irrelevant

Background Information: Tools

43 technology (no- to high-tech) used in the past & no longer in use (element category):
e.g., months, percent of day used & outcomes; degree of satisfaction; solutions which have not been effective; reason for discontinued use; behavioral responses; perceived attitude/student's personal perceptions of, interactions with; approach to; parent/caregiver reactions; experiences with devices (battery operated, computer, adaptive); previous adaptations; history; date purchased/obtained and date stopped using; who provided/paid for; what worked, what didn't, & why; characteristics/features/settings/preferences of peripherals - size, number, hand preference, range of motion, spacing, timed response, scanning, layout, representation, target, text; augmentative communication system - symbol set, access, technique; switch use (number, type, size); sensory characteristics; access options; feedback & physical components; student willingness to use

44 technology (no- to high-tech) currently/frequently used (category):
e.g., hardware & software used in school, home, work, &/or other location; no-tech to high-tech; tools available for use; strategies to increase student performance; & characteristics/features/settings/preferences of e.g., peripherals - size, number, hand preference, range of motion, spacing, timed response, scanning, layout, representation, target, text; augmentative communication system - symbol set, access, technique; switch use (number, type, size)

45 impact of technology (no- to high-tech) currently/frequently used:
e.g., satisfaction or frustration, creativity, encouragement, social interaction promoted, esteem; success & independence; increased effectiveness in completing the target task; functional skills or tasks are enabled by the AT

49 strategies:

e.g., documentation of instructional strategies tried over sufficient time, successful approaches to educational tasks; solutions which do not involve technology

Background Information: Environments

5 current placement/grade:
time in regular education (location, time, hours per week); grade level; support of teacher/paraprofessional

Environments

36 environments (element category):

environments in which assessment goals & tasks are to be performed by the student to include home, educational, community, vocational, & leisure; e.g., environmental & contextual assessment; performance demands placed on student by environment; special concerns

Environments: Natural/Customary

37 educational environment/school:

considerations of both physical environment & cultural environment in which student is to perform identified task(s); e.g. support, independence & cooperation of friends/peers & family; status in eyes of peers; social support; attitudinal barriers; access - school, classroom settings, laboratories, library, auditorium, cafeteria, lavatories, hallways, stairs, playground, entrances; physical & architectural barriers

38 work:

considerations of both physical environment & cultural environment in which student is to perform identified task(s); e.g., if context is educational (in IEP) - support & cooperation of employer/peers; attitudinal barriers of user or environment; physical & cognitive demands of the job; physical & architectural barriers; employment history; pre-disability work experience; training & education; confounding variables/impediments to successful employment (i.e., will lose medical benefits if earn too much money); potential for work

Environments: External Factors

39 technology in the environment:

e.g., location, platform, typical school platform, length & frequency of access, type of use; current availability versus future; other users; adaptations made to AT; resource allocation

Tools (technology use)

41 tools to perform tasks (technology use: no- to high-tech) (element category):

e.g., general/common, assistive, educational, workplace, healthcare technology interventions; no- to high-tech; device or system; exploration of options; barriers & goals for device

42 student preferences (participant-added element):

Does the student have preferences regarding the type(s) of AT to use?

Tools: Comparison

46 comparison of use of technology (no- to high-tech) (element category):

e.g., assistance required; environmental fit all environments; capabilities & stamina to use without discomfort, stress, fatigue, adaptation/accommodation; length of expected use; effectiveness of features in meeting intended outcomes

47 comparison of impact of technology (no- to high-tech):

e.g., goal for device; benefits; positive & negative impact; advantages, disadvantages; achievement of desired outcomes using; acceptance of family; improvement in quality of life, parent/family's quality of life; change in performance; student & team perceptions of tools & preferences toward

- 48 comparison of characteristics/features of technology (no- to high-tech):
e.g., size & portability; access issues, vocabulary access issues; ease of maintenance & repair; upgrade options; cognitive requirements; requirement of cognitive training or physical adaptation or customization to fit into routine; availability of training/support; preferences
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Tools: Input/Switch Access

- 50 Does this student need to access other technologies by switch? (participant-added element):
This should be the first question in this section. If the answer is "yes", then seeking answers to subsequent questions is essential. If the answer is "no" then subsequent questions are mostly likely to be largely irrelevant
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Recommendations

- 51 recommendations (element category):
for each identified task (after trial); implications of findings, concerns; devices & services; characteristics of devices; abilities & skills; summary of behaviors without value judgments; no tech, low tech, & high tech options with identified characteristics
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Recommendations: General

- 52 based on specified goals & objectives:
e.g., AT required to access or accomplish identified IFSP/IEP goals & objectives
- 53 features of technology (no- to high-tech) options are based on the student's needs in the identified environments in performing the identified tasks:
match capabilities of technology to student needs; highlight of "best" matched features; e.g., appropriate technological design & capabilities to meet student needs/abilities; criteria - availability within reasonable time span, portability, durability, reliability, expandability, flexibility; no restrictions of student's functioning in other areas; support available, academic relevance, external evaluations on device available, compatibility with hardware & software in environment, appropriate & comprehensive documentation, ease of repair, ease of operation, compatibility with other adaptive devices currently in use; manufacturer/vendor - reasonable price, good training & technical support, loaner/rental available (initial trial & during repair), adequate warranty; summary of data collected; needs are categorized by device, personality & preferences, disability, environment & rank; individualized plan (functional response); appropriate technological design & capabilities to meet student needs/abilities; ease of use/minimal operational demands; prepares user for future needs; multiple uses; allows for independent use; compatible with technology home/community; preferences; access skills; no-tech, low-tech, & high-tech options considered for inclusion in an AT system for a student with these needs & abilities doing these tasks in these environments
- 54 recommendations about tools & strategies are made based on and justified with information about the student, environment, and the tasks:
e.g., no-tech, low-tech, medium-tech & high-tech options considered for inclusion in an AT system for a student with these needs and abilities doing these tasks in these environments

Action Plan

- 59 action plan (element category added through analysis):
e.g., intervention; alternative plans; potential solutions, planning issues, reinforcers, strategies; integration into multiple environments & curriculum; ability to manage/modify environment; days & times of use; What services will be provided to support the integration and use of the technology in the student's educational program. What services will be needed by the student? the family? the staff? others?
- 56 responsibilities:
e.g., clearly defined responsibilities - who is to do what by when and with what resources, including the family - equipment set-up, training, data collection, reporting of results
- 57 timelines:
specific, reasonable; aligned with applicable policy
- 58 training:
e.g., training for technical operation, functional use & acceptance/awareness (service providers, including teachers, student, peers, parents); training content (student-specific, technology/device specific, integration of device, support services) follow-up training; provider of training
- 55 trial:
in the natural/customary environments; dates & trials as appropriate to assessment process, e.g., date of initiation, trial review date, & follow-up dates; minimum length of trial; source of device for trial; criteria for success/to stop trials; reasonable achievement during trial (expectations); contact for trial strategies and/or technologies; technical support; training for trial use; data collection strategy to include how, when, & where data will be collected; expectations of user, family, IEP/AT team, direct service providers, others

Reporting

- 60 report summarizes assessment - activities, devices, student response:
e.g., summary of findings; what needed to know & what found
- 61 names & titles of individual(s) compiling report:
assessors signatures (if possible), titles, credentials
- 62 report date (element added through analysis)

Assessment

- 15 dates of assessment activities:
to include formal & informal activities such as screenings, observations, assessment activities; time(s) of day; assessment completion date
- 16 assessment team (consultant/evaluator):
e.g., team leader/coordinator & phone & if active & present member of assessment & planning team; assessment & planning team members: multidisciplinary team members; name, title/position/role, credentials, license/certification; contact information to include voice, email, address; affiliation (independent or agency) (if appropriate & not already collected)
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