Determining Supports for Learning and Performance for all Students

State of Iowa
Department of Education
Grimes State Office Building
400 E. 14th Street
Des Moines, IA 50319-0146

State Board of Education

Brooke Axiotis, President, Des Moines

Michael Bearden, Vice President, Gladbrook

Bettie Bolar, Marshalltown

Joshua Byrnes, Osage

Angela English, Dyersville

Michael L. Knedler, Council Bluffs

Mike May, Spirit Lake

Mary Ellen Miller, Wayne County

Kimberly Wayne, Des Moines

Fez Zafar, Student Member, Des Moines

Administration

Ryan M. Wise, Director and Executive Officer
of the State Board of Education

Division of Learning and Results

W. David Tilly, Deputy Director

Bureau of Leading, Teaching, Learning Services

Erika Cook, Bureau Chief

Bureau of Learner Strategies and Supports

Brad Niebling, Bureau Chief

TABLE OF CONTENTS

Introduction

The purpose of this manual is to help educators understand the importance of providing supports for learning and performance for Iowa's students in preschool through grade 12. Educational reforms at both the national and state level strengthen the need to consider accessibility supports to address the broad continuum of needs of all learners.

Supports and accommodations are part of the multi-tiered system of supports implemented in Iowa schools to help learners achieve educational standards and expectations. This manual describes a problem solving process that can be used by educators, parents, and learners to determine which supports or accommodations are needed. Suggestions for preparing the learner to use the supports and accommodations independently, along with implications for postsecondary education and careers, are included along with strategies for implementing and monitoring the impact of supports and accommodations within the classroom. Four categories of supports and accommodations are described along with numerous examples to assist decision-making teams. Appendices include two charts that provide an "at a glance" view of learner needs matched to supports and accommodations and a crosswalk of accessibility frameworks in statewide assessments.

1. Expectations and Learner Supports in Iowa's Schools

Iowa State Board of Education Vision

Iowa students will become productive citizens in a democratic society, and successful participants in a global community.

A Guiding Principle

Improving student performance requires a broad constituency of support.

To ensure that all learners in Iowa acquire knowledge and skills they will need to become productive and successful citizens, a rigorous set of expectations and standards for academic achievement has been adopted for Iowa public schools and accredited nonpublic schools. The standards identify the goals of learning for each age or grade level, but they do not specify the instruction and intervention methods or materials needed to support the range of capabilities, learning needs, and achievement levels of individual learners. A full range of services, programs, and supports and accommodations must be provided for all students who have learning needs.

Iowa's Educational Standards

Iowa Early Learning Standards are descriptions of the knowledge, behaviors, and skills that children may demonstrate during the first five years of life. These skills are designed to lead to success as learners enter school and later become productive adult citizens in our communities. Iowa Early Learning Standards include statements of the standards (expectations), a brief rationale, benchmarks (specific skills and behaviors to demonstrate the standard), and appropriate adult supports. The standards incorporate the provision of additional individualized supports, adaptations, and accommodations for young children with unique physical, social, emotional, health, sensory and/or communication needs. The standards have been aligned with Iowa Core Standards at the kindergarten level (Iowa Department of Education, 2012).

The Iowa Early Learning Standards for children birth to 2 (infant/toddler) and ages 3-5 (preschool) include six content areas:

- physical well-being and motor development;
- approaches to learning;
- social and emotional development;
- communication, language, and literacy;
- mathematics and science;
- creative arts; and
- social studies.

Iowa Early Learning Standards (2012)

Iowa Core Standards are comprised of rigorous achievement expectations for learners in kindergarten through 12th grade. The development of the Iowa Core began with legislation passed in 2005 (Senate File 245) calling for a model curriculum for Iowa's high schools, including literacy, mathematics and science. In 2007, legislation expanded the scope of the Iowa Core Curriculum to include grades K-8 and added social studies and 21st century skills. In 2010, the Iowa State Board of Education adopted

the Common Core State Standards with additional information about essential concepts and skills for the Iowa Core in literacy and mathematics. The standards allow for the widest possible range of learners to be fully involved from the outset and permit appropriate accommodations to ensure their maximum participation.

Iowa Core Standards include the following academic areas:

- **Literacy**: Reading Standards for Literature, Reading Standards for Informational Text, Writing Standards, Speaking and Listening Standards, Language Standards, Reading Standards for Literacy in History/Social Studies, Reading Standards for Literacy in Science and Technical Subjects, and Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects;
- **Mathematics**: Number and Quantity, Algebra, Functions, Modeling, Geometry, and Statistics and Probability;
- **Science**: Physical Science, Life Science, Earth and Space Sciences, and Engineering, Technology, and Applications of Science;
- **Social Studies**: Behavioral Sciences, Economics, Geography, History, and Political Science-Civic Literacy; and
- **21st Century Skills**: Political Science-Civic Literacy, Employability Skills, Financial Literacy, Health Literacy, and Technology Literacy.

> A searchable database of Iowa Core Standards with descriptions and links to educator resources and information for parents.

Iowa Core Essential Elements are specific statements of knowledge and skills linked to grade-level Iowa Core Literacy (English Language Arts), Mathematics, and Science Standards. They are intended to describe challenging expectations for students with significant cognitive disabilities in kindergarten through 12th grade. The Iowa Core Essential Elements satisfy the requirements of the U.S. Department of Education that Iowa have alternate achievement standards for its students with significant cognitive disabilities that reflect high expectations, are clearly linked to grade-level academic content standards that yield student achievement, and prepare students with significant cognitive disabilities for college and career readiness.

> A searchable database of Iowa Core Essential Elements for Literacy and Mathematics
>
> Iowa Core Essential Elements Science for Students with Significant Cognitive Disabilities (2015)

Statewide and Districtwide Assessments

A variety of statewide and districtwide assessments are used in Iowa school districts to measure academic achievement. All learners are expected to participate in these large- scale assessments in the areas of literacy, mathematics, and science. Students with disabilities are assessed as indicated in their individualized education program (IEP) or Section 504 plan. Students with disabilities and students who are English learners may have appropriate accommodations in the administration of these assessments.

Accessibility considerations for selected statewide assessments (Iowa Statewide Assessment of Student Progress (ISASP), Dynamic Learning Maps® Alternate Assessments, and English Language Proficiency Assessment-21) include a common framework of universal tools, designated supports, and accommodations. These assessments are administered online with the tools, supports, and accommodations embedded in the system or provided by the test administrator. ISASP can also be administered in a paper format.

- Universal features are access tools available to all students, based on student preference and selection. For example, a digital notepad, math tools, highlighter, keyboard navigation, and breaks are included in the testing platform as universal tools.
- Designated features are supports available for use by any student (including English learners, students with disabilities, and English learners with disabilities) only when the need for support(s) has been indicated by an educator or team of educators with parent/guardian and student input as appropriate. For example, color contrast, item masking, and separate setting are examples of designated supports.
- Accommodations are alterations to procedures or materials that provide students with fair and equitable access to assessment content by presenting the assessment in a way that aligns as closely as possible with how the student accesses content in the classroom setting. Accommodations may be provided for students with disabilities for whom there is documentation of the need for the accommodations in an IEP or Section 504 plan. Accommodations may also be provided for English learners (ELs) and ELs with disabilities who need them. For example, speech-to- text and having the test administrator enter the response for the student are examples of accommodations. Students may use whatever assistive technologies, augmentative and alternative communication devices, or other tools that are necessary and routinely used during instruction. (English Language Proficiency Assessment for the 21st Century, n.d.; Iowa Department of Education, 2013-b; Iowa Statewide Assessment of Student Progress Accommodations Manual, 2019).

The **GOLD Online Assessment System** is used to assess all preschool children enrolled in a district program in Iowa. This web-based system allows programs, as well as Area Education Agencies and the Iowa Department of Education, to assess a learner's progress based on expectations from birth through kindergarten and to provide reports at the individual, group, regional and statewide level. GOLD can be used with children with special needs, children who have advanced knowledge and skills, and children who are learning English and Spanish (Iowa Department of Education, 2016-i; Teaching Strategies® for Early Childhood, 2011).

Statewide Voluntary Preschool Program for Four-Year-Old Children:

Assessment GOLD Online Assessment System

Teaching Strategies GOLD: Frequently Asked Questions for Decision Makers

Iowa Statewide Assessment of Student Progress This suite of summative assessments will address student progress in reading, language and writing, and math in grades 3-11 and in science in grades 5, 8, and 10. The assessments are aligned with the Iowa Core standards and provide a clear and accurate assessment of student learning outcomes. Student growth, proficiency and readiness indicators will be reported.

These assessments will be implemented in Iowa's schools beginning in the 2018-2019 school year. They are computer adaptive and administered online, and also available in paper format. English, math

and science tests will evaluate students' skills using a mix of item types including technology-enhanced questions as well as open-ended essay questions. By allowing students to manipulate materials on the screen, the technology-enhanced questions provide greater insights into learning than previously used multiple choice questions.

The Individual Student Assessment Accessibility Profile Process includes suggested steps for training staff, selecting appropriate designated supports and/or accommodations for identified students, as well as entering assigned access supports, checking prior to and at the time of test administration. Practice tests are available in each assessment area to allow students to practice solving items online and become familiar with using the available online tools.

> Iowa Statewide Assessment of Student Progress
>
> www.educateiowa.gov/student-assessment
>
> http://iowa.pearsonaccessnext.com

The **Dynamic Learning Maps® (DLM) Alternate Assessments** is the State of Iowa's accountability alternate assessment that promotes fair measurement of student knowledge of the Iowa Core Literacy (English Language Arts [ELA]), Mathematics, and Science Essential Elements in grades 3–8 and high school. The DLM ELA and Mathematics Alternate Assessments are yearlong instructionally embedded assessments that include a year-end summative assessment. The DLM Science Alternate Assessment is a year-end assessment. All DLM Alternate Assessments integrate student assistive technology.

> Iowa's Alternate Assessments for Students with Significant Cognitive Disabilities
>
> Dynamic Learning Maps®
>
> Dynamic Learning Maps® Resources – including manuals

English Language Proficiency Assessment for the 21st Century (ELPA21) are assessments that measure English Language Proficiency Standards (reading, writing, speaking, and listening) that correspond to college- and career-ready content standards in English language arts, mathematics and science. The assessment includes a screener to identify English learners and monitors yearly progress in the attainment of English language proficiency for academic purposes. In the ELPA21 Accessibility and Accommodations Manual: School Year 2015–16, the Personal Needs Profile (PNP) Planning Tool is useful for recording which supports and accommodations the learner needs on the assessment.

> English Language Proficiency Assessment for the 21st Century
>
> ELPA21 Accessibility and Accommodations Manual: School Year 2015-2016

The **Formative Assessment System for Teachers (FAST)** includes curriculum-based measurement and computer adaptive testing for screening and progress monitoring in reading and mathematics for

learners in grades K-6. Other approved formative/progress monitoring assessments are identified in Approved Literacy Assessments (Iowa Department of Education, 2016-o).

FastBridge Learning

Approved Literacy Assessments

The Dynamic Learning Maps® Aligned K-6 Early Literacy Alternate Assessment is intended to provide a developmentally appropriate, naturalistic approach to progress monitoring beginning in the fall of kindergarten and extending through the end of sixth grade. The DLM Aligned K-6 Early Literacy Alternate Assessment is designed to provide schools with the alternate assessment they need to include students with the most significant cognitive disabilities in their progress monitoring processes.

Iowa's Early Literacy Alternate Assessment

Multi-Tiered System of Supports (MTSS)

The Multi-Tiered System of Supports is a collaborative inquiry process through which teams identify and align resources to achieve desired outcomes for individual learners, schools, and districts. Schools use the Iowa MTSS framework to implement evidence- based curriculum and instruction for all students (universal level); evidence-based instruction at targeted and intensive levels for students who need them; and progress monitoring for students achieving below expectations. Educators identify learners who need additional supports and interventions for learning and performance by examining screening and achievement data, observations, and other relevant information (Iowa Department of Education, 2016-f).

The *Intervention System Guide* (Iowa Department of Education, 2016-n) provides a step-by-step process to help school-based teams analyze difficulties that individual learners are experiencing. This process is used to identify learners who are not successful, provide intervention, and evaluate to determine if the intervention is sufficient. An important component in addition to identifying specific skill deficits for an individual learner, involves analyzing factors in the educational setting, curriculum, and instruction that may influence student performance to determine alterable variables that can be implemented to support the student. Alterable variables are adjustments that are intended to intensify the current instruction or intervention. For example, if the learner has difficulty manipulating information mentally, he may use written, visual, or concrete representations of the information. If the learner cannot maintain attention during an entire lesson, short breaks may be provided or the lesson can be broken into segments.

Multi-Tiered System of Supports

Intervention System Guide

To meet the needs of all students, each of the programs described below are supported and implemented in Iowa's schools. MTSS allows educators to judge the overall health of their educational system by examining data on the educational system as well as identifying learners who need additional programs and supports. The needed programs and supports are provided in both small

10

group and individual settings. The programs are monitored to ensure they support all learners in demonstrating proficiency in the Iowa Core standards and graduate from high school college- and career-ready (Iowa Department of Education, 2016-f).

Positive Behavior Interventions and Supports (PBIS)

Positive Behavior Interventions and Supports provide a multi-tiered continuum of services for all learners in the school environment. Schools implementing PBIS use a framework and organizational plan to promote and maximize academic achievement and behavioral competence for all learners. Like MTSS, PBIS uses a data-based decision-making process to determine schoolwide needs as well as individual learners. A school-based PBIS leadership team guides and evaluates the processes for the school.

The Iowa Early Childhood Positive Behavior Intervention and Supports (EC-PBIS) involves the adoption of the Center on the Social and Emotional Foundations for Early Learning Pyramid Model for facilitating development of social competence and addressing challenging behaviors. This framework includes four levels of practices that represent prevention, promotion, and intervention.

Positive Behavior Interventions and Supports

Early Childhood Iowa

Special Education

"Special education is a broad term that describes the education of students who have intellectual, physical, behavioral or emotional disabilities. Students in need of special education are identified by a two-prong test: 1) they have a disability; and 2) the effect of the disability results in them not being able to access and make progress in the general education curriculum. Special education involves specially designed instruction tailored to the unique needs of each child, and is provided at no cost to parents" (Iowa Department of Education, 2016-h).

An IEP is developed for each student who has been determined to have a disability after being evaluated by a multidisciplinary team. The plan includes a summary of the student's academic achievement and functional performance and a statement of annual goals the student can be expected to accomplish with the provision of special education services. Information from the summary of performance and annual goals is used to determine the special education services, activities, and supports that the student will need. For example, a student may require specially designed instruction, accommodations, assistive technology, and supplementary aids and services to be educated in the general education environment. In addition, the IEP describes how the student will participate in statewide and districtwide assessments and what accommodations are needed, if any. IEPs are reviewed and updated on an annual basis.

Iowa's *Specially Designed Instruction Framework-Revised* (2018) describes the critical features and effective practices to support the diagnosis, design, and delivery of effective instruction for student engagement.

Special Education

Iowa's Specially Designed Instruction Framework

11

Section 504

Section 504 of the Rehabilitation Act is a federal civil rights law that protects persons from discrimination based upon their disability status. A person is disabled under the definition of Section 504 if he or she has a mental or physical impairment that substantially limits one or more of such person's major life activities. Some students who have physical or mental conditions that limit their ability to access and participate in the general education program are entitled to rights under Section 504, even though they may not be eligible for services under special education law (Iowa Department of Education, 2008). A student must be evaluated to determine if the student is disabled under Section 504 in order to receive accommodations and services in the regular education environment. If a Section 504 plan is recommended for a student, information about placement, accommodations, and services must be documented (Iowa Department of Education, 2015-a).

Section 504

School District Responsibilities under Section 504 of the Rehabilitation Act (2008)

Section 504 Educator Guide (2015)

English Learners

School districts in Iowa are required to provide services and supports for learners whose language background is other than English. To determine the needs of individual learners, a home language survey is completed for new students. If the learner is a potential English learner (aka English language learner), English language proficiency and academic skills are assessed, and the learner may be preliminarily placed in an English language instruction program for further observation and assessment. Final decisions are then made regarding placement in the English language instruction program and mainstream classes. When a learner has demonstrated competency in English proficiency on the ELPA21 and scores proficient on the district reading and mathematics grade-level assessments in the same school year, the learner is exited from the program.

Students who are English learners may be provided accommodations in instruction and assessment. The accommodations should be designed to reduce effect of the English language deficits that would interfere with acquiring knowledge and skills or demonstrating achievement on an assessment (Division of Elementary and Secondary Education, 2015).

English Learners

Educating Iowa's English Learners (EL): A Handbook for Administrators and Teachers (2015)

Early Childhood

Iowa has instituted and participated in a number of dedicated networks and initiatives that support the development and education of children at the preschool level, such as the Statewide Voluntary Preschool Program, Iowa Quality Preschool Program Standards, Early Childhood Network, Early Childhood Iowa, and Shared Visions Preschool Program and Parent Support Program. Direct

educational services are provided for preschool children in a variety of early childhood settings, including district preschool programs, private preschool programs, Head Start programs, and other community programs.

Early childhood special education services are provided by Area Education Agencies or local school districts for children with disabilities, ages 3–5. Like special education programs for students in K-12, IEP teams with parents and professionals with expertise in special education plan specially designed instruction to support preschool children who are determined eligible for special education services. The interventions are designed to enhance the development of children and support the family's priorities and concerns. To the maximum extent appropriate, special education services are provided in early childhood settings with typically developing peers.

Early Childhood Special Education

At Risk, Dropout Prevention, and Alternative Education

At risk programs address the needs of learners who are not meeting the established goals of the educational program, including academic achievement, personal and social expectations, and career and vocational goals. By definition, at-risk learners in Iowa include, but are not limited to, homeless children and youth and dropouts, including returning and potential dropouts (281 Iowa Administrative Code 12.2(256)). Each district is required to identify individual learners at risk of school failure and determine appropriate ongoing educational strategies for alternative education programs.

Alternative education options may include a program, such as a class established within a regular education program designed to address specific student educational needs.

The needs may include skills in reading, mathematics, or science; communication; social skills; physical skills; employability skills; study skills; or life skills. An alternative school is a separate environment or school with its own policies, rules, staff, and resources.

Students attend these schools by choice (281 Iowa Administrative Code 12.2(256)).

Dropout prevention interventions are school- and community-based initiatives designed to keep students in school in order to complete their high school education. Interventions and services, such as counseling, monitoring, school restructuring, curriculum redesign, and community services, are provided to eliminate barriers so students may be successful academically, personally, and in a career or vocation. Returning dropouts are students in grades 7–12 who have previously withdrawn from school and subsequently enrolled in a public school in the district. Potential dropouts are students currently enrolled in school who demonstrate at least two of the following indicators: high rate of absenteeism, truancy, or tardiness; limited or no extracurricular activities or lack of identification with the school, poor grades including failures; and achievement at least two years below grade level in reading or mathematics.

At Risk

Alternative Education

Dropout Prevention

Title I Programs

Funding is provided to school districts through Title I of the Federal Elementary and Secondary Education Act to serve eligible children who are economically disadvantaged and identified by the school as failing or most at risk of failing to meet the State's academic achievement standards on the basis of multiple, educationally related, objective criteria. Children are selected for these programs and services using criteria, such as teacher judgment, interviews with parents, and developmentally appropriate measures. Programs and services may be provided schoolwide if at least 40 percent of the children are from low-income families. The purpose of the program is to enable learners to meet academic standards using effective methods and instructional strategies in addition to support for parent involvement and provision of comprehensive services to address other needs of the learners, including health, nutrition, and other social services if needed.

Title Programs to Improve Student Achievement: Title I

Online Learning

Iowa Learning Online (ILO) is virtual learning program designed to help local school districts expand learning opportunities for their high school students through high-quality, rigorous courses. Iowa licensed and appropriately endorsed teachers teach all courses.

The ILO website provides a list of online and courses available to eligible students in grades 9–12. ILO serves as the official clearinghouse of high school course offerings in Iowa.

Participation in this program is voluntary. Students enroll in ILO courses through their local district or school, with grades and credits given by the local district or school. The school or district is responsible for accessible technologies and accommodations for students with special needs (Iowa Department of Education, 2016-a). For example, if a student needs a specialized keyboard to access the computer, the school will be responsible for providing it and making sure it works with the online system.

Invited In: Measuring UDL in Online Learning (Smith, 2016) provides information about how to evaluate content accessibility and indicators of universal design for learning (UDL) in online learning environments. The Center on Online Learning makes a UDL Scan Tool available at no cost for developers, educators, and others. When used in combination with other accessibility tools, the UDL Scan Tool can help determine how online learning can be developed in order to ensure the needs of all learners are being addressed. The No-Mouse Challenge is a simple strategy to explore accessibility of a website.

Iowa Learning Online

Invited In: Measuring UDL in Online Learning (2016)

UDL Scan Tool (2016)

No-Mouse Challenge

Supports for Learning and Performance

Iowa districts and schools provide a wide range of programs through a Multi-Tiered System of Supports to help all students achieve the Iowa Early Learning Standards, the Iowa Core, and Essential Elements. Common elements of these programs include:

- effective, evidence-based instructional programs and interventions;
- differentiated instruction and intervention strategies;
- individualized supports, accommodations, and alterable variables to ensure access to instruction and assessment procedures and materials;
- evaluation of student performance and program effectiveness; and
- collaboration among educators, relevant agencies, and families.

All learners are expected to work toward rigorous standards and participate in statewide assessments. It is important to ensure that they have sufficient access to instruction and assessment procedures and materials to successfully acquire the expected knowledge and skills and apply their learning in assignments and assessments in school and in the community.

Many different strategies and tools can be used to address individual learner needs. Adaptive equipment and accessible educational materials are examples of tools that can support the learner and intensify instruction (Iowa Department of Education,

2016-n). Differentiating instruction may involve providing materials at varied levels of difficulty for students who read below grade level. Information may be presented in multi- sensory formats for students who are have difficulty with textbooks or lectures (Iowa Department of Education, 2013-a).

Accommodations for students with disabilities, including students with significant cognitive disabilities are intended to reduce or eliminate the effects of the disability so they can access the instruction and assessment. Accommodations for students with disabilities are documented in their IEP or Section 504 plan (Iowa Department of Education, 2015-a; 2016-e). Accommodations are also provided for English learners to reduce the effect of the language deficit that interferes with day-to-day instruction and assessments, with documentation maintained in appropriate student and testing records (Division of Elementary and Secondary Education, 2015).

The accessibility framework of the statewide assessment programs (ISASP, DLM, and ELPA21) used in Iowa reveals changing practices in the provision of supports and accommodations. Universal tools and designated supports are available for any student who needs them. Accommodations can be provided for students with disabilities and students who are English learners. All students must have the opportunity to learn how to use the universal tools, supports, and accommodations as a regular part of their classroom instruction (Shyyan, Thurlow, Christensen, Lazarus, Paul, & Touchette, 2016).

2. Using Problem Solving to Select Supports and Accommodations

Decisions about supports and accommodations for individual learners are made in different ways. A middle school teacher may become aware of needs as he observes the students in his class. For instance, one student cannot remember what to do when instructions are given orally. Another student always gives incomplete answers to open- ended questions. Simply telling students to listen more carefully or read the questions again is not likely to be sufficient for them to be successful. The teacher may decide to discuss his observations at a department team meeting in order to identify strategies to try. Students may also be identified through universal screening as part of the MTSS framework implemented in their school. Learners with results below expectations may need supports or accommodations in addition to targeted or intensive intervention. If the student has a disability, the planning process used for the IEP or Section 504 includes the identification of accommodations the student needs to access core instruction and assessments (Iowa Department of Education, 2015-a; 2015-b; 2016-d; 2016-e).

Sometimes teachers and decision-making teams will select a long list of supports or accommodations without really knowing whether or not a learner actually needs or will benefit from them. This can result in unnecessary or inappropriate supports or accommodations that can potentially have a detrimental effect on learning and performance. Decisions about supports and accommodations should consider the instructional goals, the needs of the learner, the environments in which the learner must function, and the tasks required in instruction and assessment. The team can use a systematic problem-solving process that leads to better decisions by focusing on the specific tasks that are difficult for the learner (Shyyan et al., 2016). The teacher and the decision-making team should follow these guidelines when making decisions about supports and accommodations.

- Supports for learning and performance and accommodations do not change or reduce the expectations of the standards.
- Supports and accommodations facilitate instruction and assessment of students by reducing barriers to learning and performance.
- The student's need for specific supports or accommodations is a data-based decision.
- The student will need the same supports or accommodations for classroom instruction and assessments and statewide and districtwide assessments.
- The student is willing to use the support or accommodation for instruction and assessment (Shyyan et al., 2016).

A four-step problem solving process can be used to select, implement, and evaluate supports and accommodations. This problem-solving process is adapted from the collaborative inquiry process in MTSS (Iowa Department of Education, 2014; 2016-f; 2016-m; 2016-n) and the SETT framework used in the analysis of a student's needs for assistive technology in special education (Zabala, 2005-a; 2005-b).

Step One.   What tasks are difficult for the learner?

Step Two.   Why is this specific task difficult for the learner?

Step Three.   What supports or accommodations does the learner need to perform these tasks as independently as possible?

Step Four.   How will we know if the supports or accommodations are effective?

This chapter provides an explanation of each step along with additional questions that can be used to gather in-depth information. Examples are included to illustrate this process.

> ## STEP ONE
>
> **What tasks are difficult for the learner?**
>
> - **What tasks does the learner need to be able to accomplish to achieve grade-level standards and instructional objectives?**
> - **What are the areas of concern? Which tasks are difficult for the learner to perform independently?**

What tasks are difficult for the learner? Learners are expected to perform many different kinds of tasks in classroom instruction and assessment activities and on statewide and districtwide tests. Learners are expected to perform these tasks effectively and independently to achieve grade-level standards or instructional objectives.

What tasks does the learner need to be able to accomplish to achieve grade-level standards and instructional objectives? It is important for everyone on the decision- making team to understand what the learner is expected to know and be able to do to achieve grade-level standards and instructional objectives. Instruction and assessment activities involve different kinds of tasks, such as reading to obtain information, writing answers to open-ended questions, gathering data, solving problems, following directions, expressing ideas, working independently, or collaborating with a group.

The team will also need to think about the tasks used in the statewide and districtwide assessments. The English, math and science tests in the ISASP will evaluate students' skills using a mix of item types including technology-enhanced questions as well as open-ended essay questions. By allowing students to manipulate material on the screen, the technology-enhanced questions provide greater insights into learning than previously used multiple choice questions. Online testing broadens its accessibility to students with a wider array of learning needs. Most tasks on the DLM Alternate Assessment require the student to directly interact with the computer. Test items include multiple-choice, matching, or sorting activities (Well- Moreau, Bechard, & Karvonen, 2016). The ELPA21 is also administered on a computer and includes multiple-choice and true-false items and technology-enhanced items that require the student to place words in the appropriate order, select text in a paragraph, or match objects to words. In addition, ELPA21 includes constructed-response items that require the student to provide text or record speech to respond to a task (English Language Proficiency Assessment for the 21st Century, 2014). The following questions may be used to guide decision making:

- What are the characteristics of the test the student needs to take? Are the test tasks similar to classroom assessment tasks or does the student need to have the opportunity to practice similar tasks prior to testing?
- Does the student use a support or accommodation for a classroom task that is allowed for similar tasks on the statewide or districtwide tests?
- Are there other barriers that could be removed by using a support or accommodation that is not already offered or used by the student? (adapted from Shyyan et al., 2016, p. 32)

Resources for statewide and districtwide assessments are included in Appendix B. "Crosswalk of Accessibility Frameworks for Statewide Assessments in Iowa;" and Appendix C. "Online Resources: Statewide Assessment Accessibility."

What are the areas of concern? Which tasks are difficult for the learner to perform independently? The decision-making team begins by considering general information about the learner's current progress in academic subjects as well as nonacademic skills and behaviors. The team analyzes any concerns about the learner's ability to function independently. For example, a student may have low grades in

content area classes because he has difficulty with tasks that involve reading and writing. Areas of concern involve academic and career and technical performance; communication; physical, sensory and capabilities; cognitive processes; and social/emotional competence. This table provides examples of functions for each category (adapted from Zabala, 2005-a).

Areas of Concern

Academic Performance - Foundational and content area reading, written expression, oral expression, listening comprehension, and mathematics calculation and reasoning

Career and Technical Performance - General work behaviors, interpersonal relationships, and job-related work skills

Communication - Receptive and expressive language, voice, fluency and use of language (pragmatics)

Cognitive Processes - Processes used to recall and apply knowledge, reason, and solve problems

Physical Capabilities - Health, motor abilities, seating and positioning

Sensory Capabilities - Vision, hearing, and sensitivity to touch

Social/Emotional Competence - Adaptive behaviors, social skills, and self-regulation

Once areas of concern have been identified, the team will pinpoint specific tasks that are difficult for the learner and proceed through the next steps of the problem solving process for each task. For example, a student who is not reading on grade level may fail a universal screening assessment. The team will need to consider more in-depth information to identify which specific reading tasks are difficult or even impossible for the student to do independently. It is important to focus on tasks that are typically used for instruction and assessment. There also may be other kinds of naturally occurring tasks in the classroom in which the learner has difficulty, such as following class rules or participating in cooperative group activities. A variety of techniques can be used to collect data about the student.

- **R Review** existing data (e.g. work samples, cumulative file, universal screening, formative and interim assessments, progress monitoring);

- **I Interview** people familiar with the student (e.g. teachers, parents, the student);

- **O Observe** the setting, instruction, student, and learning opportunities; and

- **T Test**, when needed, to identify the student's skills or capabilities (Iowa Department of Education, 2015-b; 2016-n).

Universal screening, formative assessments, and progress monitoring provide performance data reflecting the acquisition or application of specific skills. Classroom work samples and observational and anecdotal information shared from teachers, parents, and the learner may reveal difficulties the learner has with certain tasks.

Learners may exhibit difficulties on a range of tasks, such as:

Academic Performance

- Skips words when reading aloud passages from a textbook
- Does not find information on a selected topic in a reference

Career and Technical Performance

- Skips steps in a set of directions
- Gets upset when there is a change in how to complete a task

Communication

- Provides vague explanations of solutions for math problems
- Does not speak with others in the classroom Cognitive Processes
- Does not remember the order of steps in a procedure
- Consistently creates unorganized reports Physical Capabilities
- Does not write legibly
- Cannot walk up and down stairs Sensory Capabilities
- Does not hear most words or phrases when the teacher talks to the class
- Cannot clearly see small print used in textbooks

Social-Emotional Competence

- Rarely asks for help
- Gets along with only a few classmates

For students with an IEP, the team must determine how the student's disability affects involvement and progress in the general education curriculum. The IEP must include a description of the functional implications of the student's disability in and out of school. For preschool children, the statement must describe how the child's disability affects his participation in appropriate activities including the functional implications (Iowa Department of Education, 2016-d). A Section 504 plan describes the student's disability and the related aids and services the student needs to receive a free appropriate public education (Iowa Department of Education, 2015-a). The areas of concern previously described generally relate to functional impact of a student's disability.

STEP TWO

Why is this specific task difficult for the learner?

- **How does the learner currently perform this task?**
- **What supports or accommodations does the learner regularly use? Does the learner have difficulty using particular supports or accommodations?**
- **How do factors in the setting and environment, curriculum, or instruction act as supports or barriers for the learner?**

Why is this specific task difficult for the learner? The teacher and the decision- making team may be tempted to skip this step and go right to Step Three to select a support or accommodation. For some learners, this may be appropriate. For example, a learner who cannot clearly see words in print may simply need to be reminded to put on her glasses when she reads. However, for many students who struggle, identifying the source of the difficulties is a more complex process.

To understand why a particular task is difficult, it is important to consider the strengths and skills of the learner. In Step One, the team uses current performance and progress monitoring data to get a sense of the learner's level of achievement and functioning in the areas of concern. Classroom tasks require learners to apply skills in both academic and nonacademic situations or contexts. Data about the setting, curriculum, and instructional delivery system can provide valuable insight into the expectations of the learner, the circumstances, and the tools, equipment, and materials that are used.

   S Setting: Context and environment in which the learning is to occur

C **Curriculum:** The material and skills being taught and assessed

I **Instruction:** How skills are taught, practiced, corrected, and reinforced

L **Learner:** Skill strengths and needs of the learner (Iowa Department of Education, 2015-b; 2016-n).

How does the learner currently perform this task? One way to understand how the learner currently performs the task is to analyze the demands of the task. In education, task analysis is frequently used to break down a complex activity into observable steps or components for purposes of sequencing instruction. For the problem-solving process, the analysis focuses on the demands of the task to lead to a better understanding of the learner's performance. The analysis includes a description of the behaviors that represent grade-level or age appropriate expectations for each component of the task and relevant functional capabilities (e.g., communication, cognitive, physical, sensory, or social/emotional) (Zabala, 2010). By comparing the expected performance with what the learner currently can do, the decision-making team can identify gaps that may be addressed by supports, accommodations, or interventions. The chart and example below illustrate the analysis of task demands.

Analyze Task Demands

Learner: _____

Describe the task: _____

Grade-Level Expectations	What the Learner Can Do	Gap?
Academic/Career & Technical		
Communication		
Cognitive		
Sensory		
Physical		
Social/Emotional		

Example: Reading Passages from the Textbook to Gain Information.

In a middle school team meeting, Ms. Smith, the eighth grade social studies teacher discusses difficulties that one of her students is having in class. Madison has a hard time understanding academic vocabulary, and she cannot remember key points and important details when she reads the textbook. She also takes much longer than other students to complete class assignments that involve reading. In fact, unless Ms. Smith keeps prompting her, Madison gives up after three or four minutes. The middle school team wants to understand why Madison is having so much difficulty reading her textbook. The team asks questions to find out what Madison can do. Answers to these questions can lead to potential solutions to her problems.

- Can she recognize the new vocabulary words?
- Does she understand what they mean?
- Can she connect key points and details?
- Does she understand the information when her teacher explains it?

20

- What happens when she reads aloud from the textbook?
- How does she do when she reads silently?

To analyze the demands of this task, the teachers refer to the 6–8 grade-level standards for Iowa Core Literacy in History/Social Studies, Science, and Technology Subjects (Iowa Department of Education, 2010-a) and their knowledge of instructional activities to fill in the left column of the chart (Grade-Level Expectations). Ms. Smith completes the right column (What the Learner Can Do).

Analysis of Task Demands

Learner: Madison

Task: Reading passages from textbooks to gain information

Grade-Level Expectations	What the Learner Can Do	Gap?
Academic/Career & Technical		
a) Read and comprehend social studies texts independently and proficiently (RH.6-8.10) b) Determine the central ideas and information (RH.6-8.2) c) Determine the meaning of words and phrases as they are used in a text (RH.6-8.4)	a) Reads aloud and comprehends fourth grade-level texts (independent reading level) b) Recognizes main ideas in fourth grade-level text c) Skips unfamiliar words and asks for assistance when reading aloud; performance improves when taught new vocabulary before reading passages	**Yes** **Yes** **Yes**
Communication		
Express information conveyed in text	Uses age-appropriate oral expression when paraphrasing or Explaining	**No**
Cognitive		
a) Link new information with prior background knowledge b) Connect central ideas with details	a) Can paraphrase and explain new information after teacher presents orally b) Can recognize a central idea or detail, but does not describe connection	**No** **Yes**
Sensory		
Clearly see the print on the page; scan the print	Wears glasses for reading, can see clearly	**No**
Physical		
Hold the book, turn the pages	Holds the book, turns the pages independently	**No**
Social/Emotional		
Maintain attention for duration of task	When reading independently, frequently gives up after three or four minutes unless prompted by the teacher	**Yes**

Madison has a great deal of difficulty gaining information by reading because her independent reading level is substantially below the eighth grade level of her social studies textbook. She often skips words she doesn't know, but does better when vocabulary is introduced before she has to read. She can identify a key point or detail, but cannot describe how they are connected. She is able to paraphrase and explain social studies information when her teacher presents it orally. She frequently abandons independent reading tasks unless the teacher prompts her.

What supports or accommodations does the learner regularly use? Does the learner have difficulty using a particular support or accommodation? The learner may already be using supports and accommodations, but they are not sufficient to affect the learner's ability to perform the task. For example, a learner may be given extended time to complete assignments and assessments. To determine if the learner is actually using the extended time, the teacher observes the learner's productivity throughout the time allocated to the task. Does the learner work continuously, or is the learner easily distracted and off task? The learner may not actually use the support or accommodation or it may be unrelated to the reason why the learner is having difficulty with this particular task.

Some learners need to be reminded to use a support or accommodation, especially when it is new. They may continue with the task without employing the support, and there is no improvement. Another learner may not fully understand how to use the support or accommodation. This is often true when technology or accessible materials are introduced, as they can change the way the learner works on the task. For example, a student may be given a laptop with text-to-speech software to listen to text. At first the student struggles to listen and think about the content at the same time and is not able to remember the information. If a support or accommodation requires too much effort, the student is likely to go back to performing the task and not use the support. A student may also be embarrassed to use anything that makes him look different from peers.

Getting the learner involved in decisions about supports or accommodations is essential. The learner should be encouraged to share personal insights and preferences to identify supports or accommodations that are necessary and helpful. The next chapter provides suggestions for involving students in the problem-solving process.

How do factors in the setting and environment, curriculum, or instruction act as supports or barriers for the learner? To compare the expected performance to what the learner currently can do, the teacher and the decision-making team will also consider factors in the setting and environment, curriculum, and instruction, including standard classroom tools and materials that the learner is expected to use. Consider as many factors as needed to identify possible supports and barriers for the learner.

> **Setting and Environment**—physical setting, instructional setting, social setting, group size, time allocation and schedule (Iowa Department of Education, 2016-n)
>
> Conditions in the learning environment can impact student performance. Acoustics and lighting, arrangement of furniture and physical access, as well as grouping for instruction can support or deter learner outcomes. Each type of classroom must be considered. The equipment, facilities, and resources in a physical education class differ from those in a science lab or a typical English classroom. The decision- making team will need information about relevant aspects of the student's learning environments and in some cases the home and community where the learner may also need to perform the task. Teachers and other personnel can provide information based on observations or interviews about the student's learning environments. The learner should be encouraged to offer her perspective about what gets in the way. For example, if the environment is noisy and the learner has trouble paying attention, the team may address this in different ways. They may think about reducing auditory distraction or adding a microphone for the teacher. Each option should be considered so the team can select most appropriate one for the learner.

Curriculum—scope and sequence, organization and integration of knowledge and skills, pacing, tools and materials, evaluation approaches (Iowa Department of Education, 2016-n)

Many educators and parents think of the Iowa Core Standards as the curriculum, but this is misleading. The standards do not specify which activities and materials must be used to help students learn. A curriculum is generally comprised of a set of lessons, content, materials, and assessments designed to facilitate learning of a scope and sequence of objectives. As appropriate, the curriculum is aligned to the relevant academic standards in Iowa.

Learners may require supports or accommodations to be successful in a curriculum. For example, one learner may need additional focused instruction for individual skills taught within an integrated curriculum. Another learner may need accessible formats for instructional materials. In some schools, pacing guides or schedules specify a certain number of days for each lesson or objective. Individual learners may need more or less time than the schedule recommends.

Instruction—instructional match with learner needs and skills, systematic and explicit instruction, opportunities to respond, feedback, scaffolding, motivation and engagement (Iowa Department of Education, 2016-n)

Instructional practices are the teaching methods that guide interaction in the classroom. To the extent appropriate, teachers employ systematic and explicit instructional practices that are evidence-based. Instruction includes activities for acquiring knowledge and skills, opportunities for practice and feedback, and evaluation. Scaffolding is frequently used in instruction to break learning into smaller chunks, to provide a framework or outline for expected outcomes, and to foster more student involvement in learning. Learner motivation and engagement is a critical aspect of effective instruction. A learner's strengths and interests will support effort and motivation for instructional tasks. In preschool classrooms, instructional practices may include embedded learning opportunities, an evidence-based practice where the teacher intentionally plans for learning opportunities in the naturally occurring daily routine and activities.

Learners may need supports or accommodations to perform tasks used for instruction and assessment. For example, a learner who has difficulty with abstract concepts may be able to understand the concept by completing a graphic organizer that depicts the relationship among the characteristics, definition, and examples of the concept (Bulgren, Schumaker, & Deshler, 1993). A learner who struggles to speak in class may need to use alternate response strategies, such as response cards, choral responding, or a written response.

STEP THREE

What supports or accommodations does the learner need to perform these tasks as independently as possible?

- **Does the learner need different supports or accommodations?**
- **How do you decide what to try?**
- **What should go into an action plan?**

What supports or accommodations does the learner need to perform these tasks as independently as possible? The gaps identified from the analysis of task demands provide a starting point to determine what the learner needs. Some learners will require additional instruction or more intensive intervention to increase specific knowledge and skills for the task. Others will need to learn

how to use a support or accommodation more effectively and efficiently. Learners may also need to use additional supports or accommodations, such as assistive technology, to accomplish the task. Some may need to learn to employ strategies that will enhance learning, organization skills, or self- regulation techniques to manage their own effort and output.

Does the learner need different supports or accommodations? A learner may need new or different supports or accommodations. The team should consider a range of possible supports and accommodations by brainstorming possibilities and considering as many feasible options as possible. Restricting considerations to a popular strategy or device may inhibit the teacher and decision-making team from selecting the most effective support or accommodation.

Feature match is a technique used in selecting assistive technology. The technique involves identifying the learner's abilities and needs (cognition, communication, sensory input/output, and motor skills) and matching them to specific features of the technology. The last chapter of this manual includes many examples of supports and accommodations grouped by category: means of representation, means of expression, setting, and scheduling. Appendix A. "Matching Learner Needs with Supports and Accommodations—At a Glance" also provides a chart that relates specific learning difficulties to examples of supports and accommodations.

An important consideration of supports or accommodations is to determine whether they provide an alternate method or scaffolding or result in an adaptation of the task that possibly will modify the expected outcome. Consider these examples.

Alternate Method	Use text-to-speech software to listen to digital text instead of reading a printed version of a novel.
Scaffolding	Use a glossary or dictionary to identify unknown words when reading a novel.
Adapting the Task	Read a graphic version (simplified text with visual supports) instead of the original novel.

Supports or accommodations should not lower learning expectations. When a task is adapted, it may result in a modification with expectations below grade-level standards. In fact, the adaptation may limit the student's academic progress. For example, when a student is tested on five spelling words each week instead of the 20 words required for his peers, the expectations for this student are 75% lower than his classmates.

Examples of task adaptions that are likely to result in reduced expectations include:

- requiring the student to learn less material;
- letting the student look up answers in the textbook when working on a test; and
- giving assignments with only the easiest problems.

Adapting tasks may have the unintended consequence of limiting the student's opportunity to learn critical content. This may ultimately put the student at risk for not being able to meet graduation requirements for a high school diploma (Shyyan et al., 2016).

How Do You Decide What to Try? If the decision-making team has identified several options for supports or accommodations, they can use the following questions to consider the potential impact on learner performance and select the best option.

- Is the support or accommodation necessary for the learner?
- Can the learner perform the task more independently with the support or accommodation?
- Can the learner generalize the support or accommodation to similar tasks?
- Does the learner feel that the support or accommodation is acceptable? (Beech, Dixon & McKay, 2013).

Here is a brief explanation for each question.

Is the support or accommodation necessary for the learner? A support or accommodation is necessary when it increases the learner's ability to effectively perform the task. In the case of a student with a disability, an accommodation is necessary when it reduces or works around the effect of the student's disability. Deciding whether a support or accommodation is necessary can be a straightforward decision based on the results of a diagnostic tool when it comes to accessible materials and alternate response formats. A student who needs instructional materials in an accessible format, such as Braille or audio (text-to-speech) and may also need a braillewriter or voice recorder (speech-to-text) for written expression.

The necessity of supports and accommodations, such as extended time or small group instruction, is not as clear cut. A learner may need extended time for some, but not all, kinds of tasks. A learner may require small group instruction with intensive intervention in some areas, but can be successful with whole class or universal tier instruction for other subjects. The need for a support or accommodation should be a data-based decision. "Decisions should be based on individual characteristics and needs. Making blanket decisions for groups of students at particular language acquisition levels or with particular disabilities is not appropriate" (Shyyan et al., 2016, p. 25).

Can the learner perform the task more independently with the support or accommodation? In general, the support or accommodation should be the simplest tool or strategy that the learner can use now and in the long term. Complicated supports or accommodations are often abandoned by the user. In addition, the support or accommodation should allow learners to continue to make progress and develop independence in the long term. For example, a learner who needs accessible materials in audio format could listen to someone read the material aloud, listen to a prerecorded version, or listen to the text using a text reader or text-to-speech software. All three methods provide text in an audio format. However, it may not always be convenient or possible to have someone read aloud, and not all texts come in prerecorded versions. A text reader can be used with any book or print material in digital format when and where the student needs it, as long as the device is portable.

Continuing to provide instruction or intervention may reduce a learner's need for a particular support or accommodation. For example, a learner may have difficulty decoding words he doesn't recognize. The learner could use an embedded glossary or dictionary as a support when reading a digital text or he could ask the teacher.

With continued instruction on phonics, structural analysis, and vocabulary, this learner may be able to increase word recognition skills so that the dictionary will only be needed for words he cannot decode.

Can the learner generalize the support or accommodation to similar tasks? A support or accommodation can be leveraged to have greater impact on student performance if it can be used with more than one task. A student may learn to use a graphic organizer to understand concepts in science. This same graphic organizer may work well in social studies and literature. A generalizable support or accommodation can be used in different environments. A student may use the same word processing program on portable devices, such as a tablet, laptop, or desktop computer for assignments.

Does the learner feel the accommodation is acceptable? It is important to determine whether the student is capable of learning how and when to use the support or accommodation. This involves consideration of the specific skills and capabilities the student needs in order to operate a particular device or strategy (Zabala, Bowser, &

Korsten, n.d.). The team also needs to consider how the student will use the support or accommodation for learning and participation in daily routines and real-life situations. The learner's preferences and willingness are important factors. A learner may not want to use a support or accommodation because it makes her feel different from her peers. She is likely to abandon it if teachers and family members do not support its use.

The decision-making team may wish to have the learner try several different types of supports or accommodations to see what works the best. The teacher will carry out the trial in the classroom based on the recommendations of the team. If assistive technology or accessible formats are being considered, extended trials (e.g., 6–8 weeks) with data collection are needed for a reliable assessment. The amount of time for the trial should be based on the strategy, device, or format being assessed, the learner's needs, and the severity of the learner's difficulty (Iowa Department of Education, 2016-c).

Standardized protocols can be used to objectively determine which type of support or accommodation is the best choice for an individual learner. For example, the Protocol for Accommodations in Reading (PAR) is designed to examine the effectiveness of read aloud and text reader accommodations to help a learner access the curriculum (DeCoste & Wilson, 2014). Learners read aloud passages at their independent reading level, listen to grade-level passages read by an adult reader, and use a text reader to listen to grade- level passages. Comprehension is assessed with each format to determine which is the most effective way for a learner to access information in print.

What should go into an action plan? Once the specific support or accommodation is selected, the decision-making team should get ready to implement a detailed action plan. A separate plan may be needed for each support or accommodation. The action plan involves these components:

1. **Agree upon the specific task** for which the learner needs the support or accommodation. The task should be one that the learner performs regularly and improvement will result in the learner making progress toward grade-level standards or participating successfully in the targeted learning environment.
2. **Decide which specific support or accommodation will be tried**, in which setting(s), and for how long. The team will need to determine indicators of progress (e.g., task completion, performance quality, accuracy, rate) and the frequency of data collection. These indicators provide important data about the learner's use of the support or accommodation. Grades or assessment results that reflect the impact on student progress should also be collected. These questions may be useful in designing the evaluation.
   - Will the learner be expected to complete the task more independently, more effectively, more completely, or more quickly?
   - What data can be collected to show these changes?
   - What is the expected impact on academic outcomes?
   - How will this be reflected in progress monitoring data?

   For more information on collecting and analyzing data to determine the effectiveness of an accommodation, see How Do You Know It? How Can You Show It? (Reed, Bowser, & Korsten, 2002).

3. **Determine what training and assistance the learner, staff, and parents need to implement the support or accommodation.** This may include identifying personnel who will provide the materials or devices and who will be responsible for set up and maintenance. Teachers and others who work with the learner will need information and training to support the learner with tasks. The learner will also need information, instruction, and coaching to use the support or accommodation. The learner must also have an opportunity to learn and practice performing the task with the support or accommodation before evaluating its effectiveness.
4. **Document decisions.** After appropriate tryouts and trials, decisions about supports or accommodations should be documented for each learner. Records may be kept by the classroom

teacher or in the school files. Documentation should include a description of the support or accommodation, the initiation date, location and person(s) responsible, and a summary of the data collected in the trial period. Subsequent evaluation data can be added later.

For students who have an IEP or Section 504 Plan, documentation occurs when their plan is created or revised. Data from trials may be recorded in progress monitoring data. The IEP must include a description of each accommodation, along with the initiation date, duration, and provider (Iowa Department of Education, 2016-e). A Section 504 plan must include information about placement, accommodations, and services, based on the student's needs (Iowa Department of Education, 2015-a).

Example: Reading Passages from the Textbook to Gain Information.

The middle school team determined that a significant gap exists between what is expected in the eighth grade Iowa Core Literacy standards and what Madison can do. Her independent reading level is at the fourth grade level. However, there is evidence that she can understand the information when her teacher presents it orally. Madison can paraphrase and explain the information in her own words. The PAR conducted with Madison verified that her independent reading level for content area textbooks is at the fourth grade level whether she reads aloud or silently. Madison does not recognize unfamiliar vocabulary and often skips words she does not know. When the eighth grade-level text read was read aloud, Madison was able to comprehend the information and connect key points with relevant details. Her teacher also had her use text-to-speech software to listen to a digital version of the eighth grade textbook. Madison did well with the text reader and comprehended eighth grade-level material. Madison was already comfortable with digital text, having used the text-to-speech feature on her tablet (iPad) for recreational reading.

A six-week trial period began after Madison obtained digital files for materials used in her social studies class. She learned how to access them on her iPad. She could follow the printed text and view the graphics as she listened to the synthesized voice read the text aloud. She could adjust the speed, volume, and tone until it was comfortable for her. She used headphones so the other students would not be disturbed. To evaluate the impact of the accommodation, Madison kept track of how often she used the digital books, the duration of each session, and how she felt about her effort and her results. Her teacher kept track of Madison's performance on classroom assignments and assessments that involved reading. To illustrate how the accessible materials impacted Madison's ability to perform the task of reading passages from a textbook, the analysis of task demands was updated.

Analysis of Task Demands

Learner: Madison

Task: Reading passages from textbooks to gain information

Grade-Level Expectations	What the Student Can Do	Gap?
Academic/Career & Technical		
a) Read and comprehend social studies texts independently and proficiently (RH.6-8.10)	a) Comprehends eighth grade-level text using text to speech (TTS) with embedded glossary (based on results of PAR)	**No**
b) Determine the central ideas and information (RH.6-8.2)	b) Recognizes details and central ideas in grade-level text using TTS	**No**
c) Determine the meaning of words and phrases as they are used in	c) Skips unfamiliar words and asks for assistance when reading aloud;	**No**

Grade-Level Expectations	What the Student Can Do	Gap?
a text (RH.6-8.4)	performance improves when taught new vocabulary before reading passages or uses embedded glossary support when available	
Communication		
Express information conveyed in text	Uses age-appropriate oral expression to paraphrase and explain information obtained from the textbook using TTS	**No**
Cognitive		
a) Link new information with prior background knowledge b) Connect central ideas with details	a) Paraphrases and explains new information clearly in own words b) Connects central ideas with details when making notes about text using TTS	**No** **No**
Sensory		
Clearly see the print on the page; scan the print	Sees the print when wearing glasses to read	**No**
Physical		
Hold the book, turn the pages	Holds the book, turns the pages	**No**
Social/Emotional		
Maintain attention for duration of task	Maintains attention until assignment is completed using TTS.	**No**

Madison is a student with a disability who has an IEP. Her new accommodation was documented at the IEP meeting that occurred two weeks after she finished her trial. The IEP team determined that she needs this accommodation for instruction and assessment in her classrooms and on statewide assessments of student progress.

STEP FOUR

How will we know if it is working?

- **Did learner performance on the task improve? Did the support or accommodation work the way it should?**
- **Should the learner continue to use this support or accommodation?**
- **Does the learner need something else?**

How will we know if it is working? The evaluation of the effectiveness of the support or accommodation is based on its impact on student performance on the specific tasks and progress toward grade-level standards. Indicators related to the use of the support or accommodation, such as task completion, task quality, student persistence, and frequency, should also be monitored.

Did learner performance on the task improve? Did the support or accommodation work the way it should? If student performance does not improve, the team will need to determine what may have contributed to the lack of progress and whether to continue with the current plan or adjust the support or accommodation.

Should the learner continue to use this support or accommodation? Data should also be used to determine if an effective support or accommodation should be continued. Teachers can collect data by interviewing or observing the student and reviewing student work samples and self-reports. Teachers may need to consult with colleagues to evaluate the impact of each support or accommodation in other classes.

Does the learner need something else? When student performance does not improve, interventions, supports, or accommodations may be needed. The student may need more intensive intervention to develop knowledge and skills. The student may also need other types of supports or accommodations to perform this task.

These questions can be used to evaluate the impact of supports and accommodations.

1. What supports and accommodations did the learner consistently use during instruction and assessment?
2. What are the results of classroom assignments and assessments when the support or accommodation is used, versus when not used?
3. What is the learner's perception of how well the support or accommodation works?
4. What combinations of supports or accommodations appear to be effective?
5. What difficulties are encountered in the use of the support or accommodation?
6. How will parents, teachers and specialists know if the support or accommodation is working? (Shyyan et al., 2016)

3. Involving Learners

The Iowa Early Learning Standards, the Iowa Core Standards, and Essential Elements are designed to prepare learners to become productive citizens ready to meet the demands of postsecondary education and careers. In addition to discipline-specific knowledge and skills associated with each subject area, these standards are designed to enable learners to become proficient and productive learners. One of the seven content areas in the Iowa Early Learning Standards is "Approaches to Learning." It includes curiosity and initiative, engagement and persistence, reasoning and problem solving, and play and senses. Introductory material in Iowa Core: English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects states, "As students advance through the grades and master the standards in reading, writing, speaking, listening, and language, they are able to exhibit with increasing fullness and regularity these capacities of the literate individual…. They demonstrate independence.…More broadly, they become self-directed learners, effectively seeking out and using resources to assist them, including teachers, peers, and print and digital reference materials" (Iowa Department of Education, 2010-a, p. 7). Selected Standards for Mathematical Practice in the Iowa Core: Mathematics state that students will be able to: "1. Make sense of problems and persevere in solving them; 2. Reason abstractly and quantitatively; …5. Use appropriate tools strategically; …6. Attend to precision" (Iowa Department of Education, 2010-b, pp. 8–10).

Becoming Expert Learners

More than 20 years ago, Ertmer and Newby proposed a model of the expert learner based on studies of expertise and learning. An expert learner is a person who is strategic, self-regulated, and reflective (1996). Today, the term expert learner is used to describe learners who are resourceful and knowledgeable, strategic and goal directed, and purposeful and motivated (National Center on Universal Design for Learning, 2014). Learners who are not expert learners are often described as novices or struggling students. Many researchers and practitioners have found that struggling students can develop self-awareness and learn how to plan, monitor and evaluate their own effort and resources needed to accomplish goals in learning activities. One of the key factors is the gradual transference of responsibility for the initiation and regulation of the learning process from the teacher to the student (Fisher, 2008).

Involving learners in making decisions about supports or accommodations can help them develop as expert learners. Learners can provide personal insights into the problems they experience when learning and what supports or tools they are willing to use. This is especially relevant as students become adolescents and seek to become more independent. Students need opportunities to learn which supports or accommodations are most helpful, when they need to use them, and how to advocate for their use (Shyyan et al., 2016).

By the time they turn age 14, students with disabilities must be invited to participate in transition planning including the development of their own IEPs (Iowa Department of Education, 2016-g).

> It is critical for students to understand their needs and learn self-advocacy strategies for success in school and throughout life. Some students have had limited experience expressing personal preferences and advocating for themselves. Speaking out about preferences, particularly in the presence of "authority figures," may be a new role for students, one for which they need guidance and feedback. Educators can play a key role in working with students to advocate for themselves in the context of selecting, using, and evaluating accessibility supports, making sure that the right number of supports is selected, and avoiding employing too many or too few supports.

> The more involved students are in the selection process, the more likely they are to use the selected accessibility supports, especially as they reach adolescence. Their desire to be more

independent increases as well. Self-advocacy skills become critical here. Students need opportunities to learn which accessibility supports are most helpful for them, and then they need to learn how to make certain those supports are provided in all of their classes and wherever they need them outside of school. For instance, students with significant cognitive disabilities, many of whom do not have sophisticated expressive communication systems, can show teachers whether they prefer certain supports. It is important to not limit the option of student feedback and student self-advocacy for those who cannot communicate those preferences easily (Shyyan et al., 2016, pp. 30-31).

However, all learners should be involved in making decisions about their own supports and accommodations. Teachers and parents are encouraged to talk with their children about challenges and successes they are having in school. They can discuss ideas about ways to work around any difficulties. As appropriate, learners may be invited to participate in planning meetings, such as a teacher conference or an IEP team meeting. If children are hesitant or unfamiliar with such meetings, preparation and input can be gathered beforehand. Whatever method is used, it is essential that learners understand the purpose of the meeting and have the opportunity to practice using examples of supports or accommodations that might be needed to solve learning problems.

A similar approach to the problem solving process recommended for the decision- making team can be used with learners.

Step One.   How are things going for you in class and at school?

Step Two.   What makes this task hard?

Step Three.   What support or accommodation will you use?

Step Four.   Is it working?

The following section offers a depiction of a student friendly and simplified version of the problem solving steps. Language that might be used with learners is italicized (adapted from Beech, in press; Bowser & Reed, 2007; Zabala, personal communication, October 14, 2015).

STEP ONE

How are things going for you in class and at school?

- **What kinds of things (tasks) are hard for you?**
- **Which parts of the task are easy? Which parts are still hard for you?**

How are things going for you in class and at school? Starting with a broad question can help the learner feel comfortable talking about his school experience. You may need to elaborate and ask about specific subject areas or school activities. Be sure to talk about successes as well as problems. It is also a good idea to reassure the learner that this information will be confidential. If you plan to share it with others, such as members of the IEP team or a grade-level team, you should ask permission from the student. If the learner isn't sure about what tasks are hard, ask about his grades on the report card, assignments, or tests. Encourage the learner to describe the kinds of assignments and tests used in class.

What kind of things (tasks) are hard for you? Tasks are the things that students have to do to be successful in school. For example, you need to read and write to complete assignments and homework. You have to talk with your teacher and other students when you work in a group. You have to follow class rules and the code of student conduct. If you have difficulty with tasks like these, you

may not do well in school. Specific tasks that are hard for you are the areas you can work on this year so you will be successful. For example, if you can't remember the homework assignments, you will need to figure out how to remind yourself. Otherwise you will get low grades because you don't turn in your homework.

Which parts of the task are easy? Which parts are still hard for you? It will be helpful if you can tell me what it takes to do a good job with the task. For example, when you get homework assignments, think about how you get the assignments. What do you do? Do you write it down in your planner? Do you put it in your backpack? Do you ask questions if you are not sure what to do?

STEP TWO

What makes this task hard?

- **Why do you think these parts of the task are hard for you?**
- **What changes in your classroom (learning environment) would help?**
- **In which classes do you do your best work? What things do you do well in those classes?**
- **What do you want to do better? What will it look like when you are doing it better?**

What makes this task hard?
By thinking about the parts of the task, you may be able to figure out why some parts are easy and why some parts are hard. I know a student who does better remembering her homework when assignments are written on the board. When the teacher just tells the class the assignment, this student can't write fast enough to record all of the details. She doesn't remember what the teacher said. And, she is afraid to ask questions, because she is afraid the other students will think she is stupid.

Why do you think these parts of the task are hard for you? Think about the parts of the task that are hard for you. You could say:

It's hard for me to _____ when _____.

I have trouble _____ because _____.

- Do you have a hard time understanding what the teacher says when she is talking to the whole class? Do you have trouble picking out what is important to remember? How is it when you have a study guide?
- Is it hard to write legibly when you have to write a long essay or report? Do you get tired easily when writing? How is it when you can use a computer?
- Do you have trouble reading things written on the board in the front of the room? Is it hard to see the words unless you get close? How is it when you are reading at your desk?

This is an important part of the problem-solving process as you start to "connect the dots." When you can figure out what you do well, what part is hard, and why you are having difficulty; you are more likely to find a support or accommodation that will help you.

What changes in your classroom (learning environment) would help? Do you need a quieter place? Access to a dictionary? More technology?

The environment can have a big effect on how well you do. The place where you do schoolwork probably includes a desk or table, materials, tools, and some technology. Is there is enough light? Are there too many noises and distractions? What changes are needed in your learning environment?

In which classes do you do your best work? What things do you do well in those classes? The things you do well are your strengths. Start with the classes where you are doing well. On which tasks do you do your best work? These tasks may be easy for you, or they may take some effort. For example, can you work for a longer period of time when you are by yourself or when you are with a group of students? Is it easier to talk to your teacher about what you are learning instead of writing it down? Often, your strengths can help you to accomplish difficult tasks.

What do you want to do better? What will it look like when you are doing it better? Choose a task that is really important to you. This might be something that you have to do every day or one that is really critical in terms of getting a passing grade. For example, the student who has trouble remembering homework might get better grades if she were given her assignments in writing.

Go back and review the things you said were hard and what made those tasks difficult. There are things you can try that will help you do better on these tasks. Here are some tools and strategies that work.

- If you have trouble reading, you could listen to an audio version of a book while you follow the printed words.
- You could wear noise-cancelling headphones so it will be quiet when you work.

Tools and strategies that help you do things are called supports or accommodations. You can use supports or accommodations to help you complete tasks and work around some of the problems you are having at school. You may be able to think of more than one way to work around your difficulty. Just add these ideas to the statements you completed earlier

It's hard for me to _____ when _____ .

I can do better if I _____ .

I have trouble _____ because _____ .

I can do better when _____ .

STEP THREE

What support or accommodation will you use?

- **What support or accommodation will you try first? In which classes or subjects and for how long?**
- **What can you expect when you use this support or accommodation?**
- **How will you and your teacher know if you are doing better?**
- **How can you keep track of your progress as you go along?**

What support or accommodation will you use? You've probably heard that accomplishing any goal starts with making a plan. That is true for using a support or accommodation and improving your work at school. The plan includes a clear statement of what you want to accomplish (your goal), a list of actions that you will carry out, and a way to keep track of your progress.

What support or accommodation will you try first? In which classes or subjects and for how long? You know which task you want to work on and what you want to accomplish. Now decide which support or accommodation you want to try. First think about the tools and strategies you are currently using to do your schoolwork. How well do they work? What do you wish you could do better?

Now, think about new or different tools or strategies that could help. If you don't know very much about supports and accommodations, ask your teacher to show you some examples to help you make better decisions. Talk with others about what they use and how well they work. Ask your teacher, your parents, and the rest of your team to help you decide what to try.

What should you expect when you use this support or accommodation?

The support or accommodation will help you accomplish the task more effectively and independently. But first you have to learn how to use it, how to make it work effectively, and where you can get help. Some supports or accommodations involve technology or equipment that you will need to learn how to operate. Your teacher or an assistive technology specialist will be able to teach you how to use it and what you need to do every day to make sure it is working. The teacher can act as your coach and step in when you need it, like if the device won't turn on.

Start by using the support or accommodation in just one class or subject area to see if it will work for you. Talk about it with your teacher in this class ahead of time. If he has been part of your team to make the decision, you will just need to say that you are ready to start. If your teacher hasn't been involved, you will need to explain what task you are working on and why the particular support or accommodation will help you. If this seems too scary, ask another teacher to go with you.

Your teacher can help you decide how long the trial should take. You might find that it works right away, or you may need some time to practice. When you are successful in one class, you can then use the support or accommodation in another class.

How will you and your teacher know if you are doing better? The most important thing to find out about your support or accommodation is whether it is really helping you. You and your teacher will need to pay attention to how well you are accomplishing the task or getting your work done when you use it. If your performance has not improved, you might need to learn more about how to use the support or accommodation effectively or you might need to try something else.

How can you keep track of your progress as you go along? You can keep track of your progress in a notepad or in your assignment planner. Simply write down your goal and describe what you want to do better with the support or accommodation.

Every time you use the support or accommodation, write the date and how things went. You could say, "great," "pretty good," or "needs more work;" or you could give yourself a rating from 1 to 5 with 1 meaning it did not work at all and 5 meaning it is working very well. You may also want to tell why it worked or did not work. If you are being graded on the task, make a note of the grade you received.

Goal: _____

Support or Accommodation: _____

Date	Details	Results – great, pretty good, needs more work

STEP FOUR

Is it working?

- **Did you get better with the parts of the task that were hard for you? Did the support or accommodation work the way it should?**
- **Do you want to continue using this support or accommodation?**
- **Do you want to try something else? What would it be? What else do you need?**

Is it working? After you have used the support or accommodation for a while, you are ready to reflect on how well it worked. For some types of supports or accommodations, it may take as long as six to eight weeks.

Did you get better with the parts of the task that were hard for you? Did the support or accommodation work the way it should? As you reflect on your use of the support or accommodation, think about which parts of the task were hard for you. Do these parts still cause you problems? One way to decide if the support or accommodations really worked is to do the same kind of task without the support or accommodation. Are you back to where you started? If so, the support or accommodation is really helping.

Do you want to continue to use this support or accommodation? Why or why not? You may find that the support or accommodation is really helpful. You can now accomplish a task that was hard for you. Or you may have some second thoughts. You may find that you did not really need the support or accommodation as much as you thought. You might think you could do better because you noticed that some other things need work. You may also worry that others will think you are not very smart because you use a support or accommodation. Be sure to discuss any of these concerns with your parents and teachers.

Do you want to try something else? What would it be? What else do you need? There may be other supports or accommodations that you can try. You might also need some extra help or intervention to sharpen your skills. Don't worry. You now have a four- step process to help solve your learning problems.

Accommodations in Postsecondary Education and Careers

When students with disabilities leave high school, their access to accommodations changes. Adults with disabilities make their own decisions about their accommodations, and they must request them

from their postsecondary institution or employer. Being able to use self-determination is an important part of this process. This involves understanding how their disability affects them and being able to identify their own strengths and weaknesses. Adults with disabilities need to think about things that are difficult for them to accomplish and request accommodations and assistive technology they need to be successful (Bowser & Reed, 2007).

Two pieces of federal legislation, the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973, ensure the right of persons with disabilities to have reasonable accommodations. Adults must provide any required documentation that shows that the accommodations they are requesting are necessary because of their disability. In Iowa, students may use a Support for Accommodations Request (SAR) to serve as a framework for documenting their disability when they transition from school to postsecondary education or the workplace. The receiving institution or workplace may require additional or updated documentation, but the SAR provides a good starting place.

Support for Accommodations Request

ADA and Transition: Q&A

ADA Q&A: Section 504 & Postsecondary Education

Helping your Young Adult Learn about Accessing Accommodations after High School

In the workplace, a reasonable accommodation is defined as any adjustment to a job or the work environment that enable a qualified applicant or employee with a disability to participate in the application process or to perform essential job functions. Examples of job accommodations include:

- ergonomic tools, handle build-ups, or other tool adaptations;
- division of long assignments into smaller tasks;
- extra breaks to allow for stress management techniques; and
- reduction of workspace distractions (Pacer Center, n.d.).

4. Integrating Supports and Accommodations into the Classroom

After decisions are made about supports and accommodations for individual students, teachers must consider how to integrate them into the day-to-day activities of the classroom and on standardized assessments, as appropriate. The use of a systematic problem solving process will not impact student performance unless the results are put into action. Both teachers and learners will need to think about how the supports and accommodations will be used in instruction and assessment activities. They will monitor the use of supports and accommodations and evaluate the impact. These aspects of implementation apply to the use of supports and accommodations in any instructional program, whether it is universal tier, intervention, or specially designed instruction (Iowa Department of Education, 2015-b; 2016-e; 2016-n).

Identifying Learner Needs: Diagnose for Instructional Design

The first thing the teacher has to do is identify the supports and accommodations individual learners in the class will need. Each learner's school record contains documents that may include this information. For example, accommodations are listed in IEPs or Section 504 plans for students with disabilities. Separate sections may describe classroom and assessment accommodations, or the accommodations may be listed as a service or referenced in annual goals. Teachers responsible for working with students with disabilities must be able to access and use those plans. Other types of documents may be used in schools and districts to record such information. For example, Appendix 11, "Identifying Alterable Variable Priorities" in the Intervention System Guide (Iowa Department of Education, 2016-n) is designed to help teams to identify individual student needs as part of the MTSS framework. In this and other learner support programs, different types of forms and documentation, such as notes on progress monitoring reports, may be used to record supports that individual students need.

Teachers are also urged to confer directly with the learners, previous teachers, parents, and other staff who can provide guidance about the learners' needs and describe any supports or accommodations used in the past. As learners become more skilled in self- advocacy, they will be able to take responsibility and initiate conversations with teachers about their need for supports or accommodations. Teachers also have the opportunity to directly observe and interact with learners and gather additional information as the school year progresses.

Teachers are encouraged to maintain a list of learners with their supports or accommodations to use when planning instruction. The list can be updated as needs change or new learners are enrolled in the class. An example is provided below.

Supports and Accommodations for My Learners

Annie	Desk in the front right section of classroom; repeat oral directions on individual basis
Jorge	Graphic organizers to plan writing for essays and short reports
Leon	Concrete and visual materials for math problems involving fractions
Lucia	Braille materials for reading: textbooks, supplemental materials, recreational reading; Nemeth Code and tactile materials; braillewriter; use in statewide assessment of student progress
Madison	Tablet with text-to-speech and digital files for all textbooks and supplemental materials and statewide assessment of student progress

Planning: Design for Instructional Delivery

As teachers create plans for daily learning activities and assessments, they can check their supports and accommodations list to remind them what individual learners will need. If specialized materials or equipment are needed, the teacher can note this in the lesson plans. Instructional planning involves attention to these elements:

A. **Determine desired curriculum outcomes (standards) and how they will be assessed.** The first consideration is to be clear about what "all" learners are expected to know and do and determine what materials and tools they will be expected to use for each learning activity and assessment.

B. **Analyze instruction and assessment activities and tasks for potential learner difficulties.** Possibilities include vocabulary, concepts, and procedures that are unfamiliar or difficult to conceptualize, such as common misconceptions in science (AAAS, 2016).

C. **Identify and develop options and scaffolding** to support learning for all learners. Options can be provided in terms of the way information is represented, how learners interact and respond to instruction, and how motivation and engagement is fostered.

Representation—The "What" of Learning: Highlight patterns, critical features, big ideas, and relationships using visuals and graphic organizers; clarify the meaning of vocabulary and symbols, including providing access to glossaries or dictionaries; use multi-media to illustrate ideas and procedures; provide text in alternative formats (print, audio), as appropriate; encourage interaction and processing of text using embedded notepads or annotation.

Action and Expression—The "How" of Learning: Provide multiple tools for expression and composition, such as a word processor, graphic organizer, and outline; provide different types of writing implements or electronic tools for writing or drawing.

Engagement—The "Why" of Learning: Allow learner voice and choice in selecting some topics, learning activities, and tools to increase student independence and autonomy. Have students set personal goals, set timelines, and participate in self-reflection activities. However, voice and choice does not mean that students always have choices as they need opportunities to learn in different ways. Students need to learn how to make good choices (Meyer, Rose, & Gordon, 2013; Zabala, personal communication, October 14, 2015). It is also important to remember that some learners have difficulty when given too many options and require more guidance from their teacher or parents.

Initial attention to these elements of planning can lead to better outcomes. After learners have been instructed and assessed, the teacher will need to determine appropriate follow-up for students who have not achieved the intended outcomes (Lenz, Deshler, & Kissam, 2004).

Example: Ms. Smith Plans a Social Studies Lesson.

Once the instructional plan for the class is prepared, the teacher will identify which supports or accommodations are needed for individual learners. For example, Ms. Smith is planning a social studies lesson about civil unrest. The students will read about a rebellion in their eighth grade social studies textbook and an actual newspaper editorial published at the time of the rebellion. Students will be required to write an argument to support or deny claims made in the editorial, based on evidence provided in their textbook.

Ms. Smith has Annie, Jorge, Leon, Lucia, and Madison in her class. Annie is already seated in the front of the class, and Ms. Smith will just need to remember to repeat any directions she gives orally. Madison will need her textbook and a copy of the editorial in an accessible format. Special education

staff in the district or Area Education Agency can help locate the digital files for use on Madison's tablet. Jorge will need a graphic organizer that reflects the demands of the assignment (writing argument and claims).

Ms. Smith can look for examples of graphic organizers in the curriculum resource center or on the Internet, or work with a learning coach to develop a custom organizer for this assignment. Lucia will need Braille versions of her materials that can be ordered from the Instructional Materials Center. Leon's need for supports does not apply in this lesson. By the way, the teacher has decided to teach other students in the class how to use the graphic organizer she provides for Jorge.

Integrating Supports and Accommodations: Deliver for Learner Engagement

Teachers often find that it takes more than planning to help learners use supports or accommodations. Students will need time and instruction to learn how to use them. They may also need reminders when it is time to use the support or accommodation. As they become more independent, learners may need help generalizing to new situations (Shyyan et al., 2016).

Evaluate the Impact: Monitor to Ensure Data-Based Decision Making

The value of any support or accommodation is measured in terms of its impact on student performance. These questions may be used to evaluate any support or accommodation.

- Did the learner actively participate in decisions about the support or accommodation?
- Does the learner regularly use the support or accommodation effectively?
- Can the learner participate in the activity as independently as possible when using the support or accommodation?
- Did the use of the support or accommodation help the learner feel a part of the class?
- Did the learner master the standards or learning objectives when using the support or accommodation?

Both the learner and the teacher should respond to these questions. If all answers are "Yes," then the support or accommodation is working. If the answer to any question is "No," then troubleshooting is needed to find out why. A different type of support or accommodation may be needed.

For many, the use of specific supports or accommodations will always be necessary to be able to perform tasks, such as for individuals who need accessible formats for reading. However, some supports or accommodations can provide a step toward independence, as students continue to learn and develop new skills. They may be a necessary step in scaffolding grade-level content instruction (Shyyan et al., 2016). The learner may become less dependent on the support or accommodation and more reliant on his own abilities. Teachers must continually monitor the learner's skill development as well as the use and impact of supports or accommodations.

Collaboration and Support

Collaboration is essential when providing supports or accommodations for learners. Some schools schedule common planning periods or facilitate professional learning communities so that teachers can work together. Other schools hire instructional coaches or resource teachers to provide consultation services in general education classrooms. Staff in special education, guidance, school health, as well as speech and language pathologists and occupational and physical therapists from the Area Education Agencies can provide assistance.

The purpose of collaboration is to ensure that educators, students, and parents confer on a regular basis and keep informed about the student's progress and needs. Issues can be addressed to solve problems, identify needed resources, and monitor the effectiveness and impact of the instructional program. Teachers who are open for input and ideas are likely to find assistance when working with others. When problems arise, they often find that others have faced similar problems and are eager to develop and share successful solutions.

5. Supports and Accommodations

Supports and accommodations are provided to assist learners and intensify instruction. They involve the use of different strategies and techniques, assistive technology, as well as changes in the classroom or learning environment and schedule. In this document, supports and accommodations are organized into four categories.

- **Means of Representation**—how the learner accesses information;
- **Means of Expression**—how the learner performs or demonstrates competence;
- **Setting**—where the learner is instructed and assessed; and
- **Schedule**—when the learner is instructed and assessed.

Examples of strategies, techniques, and tools, including assistive technology are included in this chapter along with brief descriptions of learners who may need such supports or accommodations. Students may need a support or accommodation that is not included in these examples. The teacher and decision-making team may determine through the problem-solving process that the students require a unique support or accommodation that has been shown to help them learn and demonstrate competence.

Universal tools, designated supports, and accommodations for statewide and districtwide assessments are described in test administration and accessibility manuals. Links to these manuals are provided with the descriptions of the statewide assessments in Chapter 1 and also in Appendix C. "Online Resources: Statewide Assessment Accessibility." In addition, Appendix B includes a "Crosswalk of Statewide Assessments and Supports" comparing the types of universal tools, designated supports, and accommodations provided in ISASP, ELPA21, DLM Alternate Assessments, and FAST.

Means of Representation

Some learners may need supports and accommodations to help them gain access to information presented in text, graphic, or audio formats if they have difficulty using standard educational materials or listening and understanding information presented through spoken language.

Accessible Learning Materials

A learner's right to accessible learning materials to participate in the general education curriculum is guaranteed in federal statutes, including the Individuals with Disability Education Act (IDEA) and the Elementary and Secondary Education Act (All Students Succeed), as well as Iowa's Rules of Special Education. Accessible learning materials are described as accessible educational and instructional materials (AEM/AIM). A joint effort of Iowa's Department of Education and the Department for the Blind facilitates the provision of curricular content in specialized formats needed by learners who struggle to read because of physical, sensory, cognitive, language, or learning differences (Iowa Department for the Blind, 2015-c; Iowa Department of Education, 2016-j).

Districts are required to provide students with disabilities core curriculum material and text books in specialized formats (Braille, large print, audio, and digital content) if needed. Specialized formats enable students to gain the information they need to complete tasks. The decision-making team is responsible for determining if a student needs accessible materials, the format of such materials, and the necessary accommodations the student needs to participate in the general curriculum. Guidelines for determining who might require accessible materials include using data to determine the need, selecting the format, acquiring the materials in a timely manner, and identifying related supports and equipment (Iowa Department for the Blind, 2015-b; Iowa Department of Education, 2016-l). The AEM Navigator is designed to assist teams in making informed, accurate decisions about a student's need for accessible materials. This tool is provided by the National Center on Accessible Educational Materials in a downloadable, printable format and as an interactive, online web-based tool (2015).

Iowa True AIM: Establishing Student Need

Iowa True AIM: Acquisition of Accessible Instructional Materials

Iowa Department for the Blind: Student Resources

AEM Navigator

Sources of Accessible Instructional Materials

The **Instructional Materials Center** in Iowa's Department for the Blind provides textbooks and instructional materials in specialized formats upon request of school personnel for students who have a print disability. Eligibility includes students who are blind or have a visual disability that prevents the reading of standard printed material, students who have a physical disability that interferes with the ability to hold a book and turn pages, and students who have a reading disability resulting from organic dysfunction (Iowa Department for the Blind, 2015-b; 2015-c).

Bookshare is an online library of digital books for individuals with print disabilities who have visual impairments, physical disabilities, or a learning disability that interferes with reading. This resource is provided through a grant from the U.S. Department of Education, Office of Special Education Programs (OSEP). Each school district in Iowa can have a free organizational membership. Qualified students can access textbooks from National Instructional Materials Access Center (NIMAC). In addition, educational reading, vocational resources, reference materials, fiction, and newspapers and magazines are available in specialized formats. Bookshare also provides reading tools for the computer, smartphone, and tablet (Bookshare, 2016; Iowa Department of Education, 2016-k).

Other sources of accessible learning materials include curriculum publishers, commercial publishers, and vendors of accessible audio files and eReaders with visual and audio displays (such as Playaway, Kindle, and Audible). Buy Accessible is a webpage that provides guidance on features to look for when purchasing accessible materials (Benetech, 2016). The Iowa AEA Online is a collection of online resources provided free by area education agencies. Open educational resources, public domain resources, and locally created resources are also available (Iowa Department of Education, 2016-k), though these resources may not be accessible in the available format i.e. materials that are born digital does not guarantee accessibility. Guidance and support for creating accessible documents and online resources can be found online e.g. aem.cast.org, diagramcenter.org, webaim.org, benetech.org

Language and Specialized Formats

A specialized format of a print-based material contains the same content as the printed material. The format changes the way in which the content is presented to the learner. It does not add nor change any information. An alternative material may address the same goals, but the content of the material is modified or changed in some way (usually made less complex) so the student can understand it (National Center on Accessible Educational Materials, 2015).

Accessible text is provided in four specialized formats: Braille, audio, digital, and large print (Iowa Department for the Blind, 2015-a). Accommodations and supports can provide assistance for students who are English learners or students who use American Sign Language, fingerspelling or cued speech for communication.

Visual Formats

American Sign Language—a form of sign language used predominantly in the United States and many parts of Canada. The shape, placement, and movement of the hands, facial expressions and body movements form the signs that convey information (National Association of the Deaf, n.d.-b; National Institute on Deafness and Other Communication Disorders, 2015). An interpreter uses American Sign Language to convey information from a speaker to the student.

Fingerspelling—Words are spelled using hands to represent each letter. It is often used to represent words that have no equivalent sign or for emphasis (National Association for the Deaf, n.d.-a).

Cued Speech —a visual mode of communication in which mouth movements of speech are combined with handshapes or "cues" to make the sounds (phonemes) of spoken languages look different. Cueing allows individuals who are deaf or hard of hearing or who have communication disorders to access spoken language through vision (National Cued Speech Association, 2016).

Text-to-Sign Language (digital)—software generates sign language or fingerspelling from text input (words, common phrases). Text to sign language converters are available on websites, such as www.handspeak.com, and apps, such as ASL Translator for tablets and smartphones.

Tactile Formats

Braille is a method of representing text using a raised dot code that is read by touch with a person's fingertips. Many persons with visual impairments use Braille for reading and writing. Materials may be produced as uncontracted Braille or contracted Braille that uses special characters to make words shorter. Braille materials are provided in embossed form on paper, through a refreshable Braille display, or a Braille notetaker attached to a computer (American Foundation for the Blind, 2016-f).

Nemeth Code is a special type of Braille used for mathematics and science symbols and notations (Braille Authority of North America, 1972; DO-IT Center, 2015-b).

Tactile graphics provide information through touch. Maps, charts, graphs, diagrams, or illustrations are presented on paper in a raised format (Shyyan et al., 2016; Iowa Department for the Blind, 2015-a; National Center on Accessible Instructional Materials, 2015).

Real objects may be used to represent items displayed on screen that cannot accurately be represented by Braille, Nemeth Code, or tactile graphics.

Other formats may include text-to-Braille, experience and concept books, story boxes, and tactile symbols.

Auditory/Oral Formats

Text-to-Speech software is sometimes called a text or screen reader. It is a form of speech synthesis that converts digital text into synthesized voice output. A screen reader may be included as part of the computer operating system, software for a computer, or as an app for a smartphone or tablet (American Foundation for the Blind, 2014).

Digital text presented in synthesized audio formats may include features that allow adjustments to the voice, navigation within the file, and supported study skills, such as bookmarking and highlighting of audio and the ability to label sections with text or audio notes (National Center on Accessible Instructional Materials, 2015).

Prerecorded Human Audio/Audio Files— A person reads the text aloud and the audio files are saved for use on a smartphone, tablet, or computer. Many published fiction and nonfiction books are available in recorded formats. Learning Ally provides over 80,000 different titles recorded by volunteer readers.

This resource can be accessed at the Instructional Materials Center (Iowa Department for the Blind, 2015-a).

Human Reader—A person reads text aloud to the student. The reader must read the text exactly as written. This must be provided to the student on an individual basis—not to a group of students.

The student may ask the reader to slow down or repeat, as well as follow the printed text while listening. In a standardized testing situation, the human reader must follow guidelines prescribed in the test administration manual (Shyyan et al., 2016, ISASP Accessibility and Accommodations Manual 2018-2019 Appendix (X) Read Aloud Guidelines)

Native Language Translation (digital)—A language convertor that translates English to another language. The native language is the language in which an English learner is proficient. Translators are available on websites (such as Google Translator), computer software, and apps for tablets and smartphones. Translators may also be embedded as a tool in a device that displays or reads a digital version of a document.

Partner-Assisted Scanning—A strategy in which an adult or peer assists a learner with scanning or going through the response options that are part of an instruction or assessment item. The adult or peer reads and/or points to each response option, and the learners indicate when the desired choice is presented. In the case of a standardized test, a test administrator is trained to use partner- assisted scanning (Well-Moreaux, Bechard, & Karvonen, 2016).

Multisensory Formats

Audio with Highlighted Text—The learner using a print or digital version of the text while listening to the audio, especially if graphic information is included. Some commercial digital texts or e-books (electronic books) offer embedded read-aloud functionality.

Features of digital text that can be manipulated include font size, style, and color; background color; synchronized highlighting, text- to-speech, voice speed, and navigation. Learner supports may include search, bookmarking, notetaking, highlighter, audio notes, embedded dictionary or thesaurus, and links to multimedia. All components of the delivery interface containing text, such as buttons, menu options, and directions, should have read-aloud tags (National Center on Assessible Educational Materials, 2015).

Video Recordings—A video recording with movement and action, generally with an audio component is designed to convey information used for instructional purposes. The files may be captured on videotape, compact disc (CD), digital videodisc (DVD) or available for streaming from the Internet. When video recordings are used as an alternative format for a text, it is important to ensure that the content is closely aligned with that provided in the original source materials. **Descriptive video** adds narration of visual aspects of the actions of the characters and setting around existing dialogue to make videos more accessible to individuals with vision loss.

Closed Captioned Video— Closed captioning (CC) and subtitling are processes of displaying text on a television, video screen, or other visual display to provide a written version of dialogue, speech and additional or interpretive information. The term "closed" (versus "open") indicates that the captions are not visible until activated by the viewer, usually via the remote control or menu option.

Individuals who are deaf or hard of hearing or who prefer to read the lines of dialogue when viewing a video use closed captioning (Described and Captioned Media Program, 2008).

Telecommunication Relay Services—A telephone service that allows persons with hearing or speech disabilities to place and receive telephone calls. The service uses operators, called communications assistants, to facilitate telephone calls between people with hearing and speech disabilities and other

individuals. A variety of formats are available, including text to voice (TTY), speech to speech, and captioned telephone services (Federal Communication Systems, 2015).

Print on Demand or Hard Copies for Computer- Based and Online Information

Some learners may not be able to effectively use computer-based or online programs and information because the available accessibility features or assistive devices may not meet their needs. The learner may need to use a comparable print-based form of the information or program. Some assessment systems allow for print-on-demand or provide hard copies of printed material in regular print, large print, and Braille formats.

Visual Enhancements

Some learners may have difficulty seeing or recognizing text when reading. Reading requires the integration of many vision skills, and a student may have problems with his vision even though he appears to be able to see. For example, the learner must be able focus, recognize, and understand what is seen. Parents should be encouraged to discuss their child's need for visual enhancements with their eye doctor or family physician.

Magnification

Magnification Devices—A learner may use a free standing or handheld magnifier, bar magnifier, or a magnifier with illumination (Gerritsen, 2016). Viewing print through magnification devices provides flexibility and access to materials, such as maps or detailed diagrams (National Center on Accessible Instructional Materials, 2015).

Magnification Feature—Computers and software programs frequently include magnification features for enlarging or zooming. Video magnifiers, sometimes called closed-circuit television, use a video camera to display print material or objects on a screen (American Foundation for the Blind, 2016-e).

Large Print—Persons with low vision or who have a print disability may need large print materials. Large print materials typically use an18 point font with ample white space and high contrast between the color of the text and the background color. The Instructional Materials Center at Iowa's Department for the Blind can assist districts and students in obtaining large print materials for use in schools (Iowa Department for the Blind, 2015-a).

Enlarged Text and Graphics (Digital)—Digital text viewed on a tablet or computer screen can be enlarged and reformatted based on the individual's needs and preferences. All text and graphics must be enlarged (Kitchel, n.d.). Students may use the zoom feature on a computer or a magnification device to view enlarged text and graphics (Shyyan et al., 2016).

Font

Color —In general, the color of the font should be of high contrast to the background. A learner with visual difficulties may not be able to distinguish letters and words easily without high contrast.

Different colored lettering for headings and emphasis is difficult to read for many learners with low vision. When used, dark blues and greens are most effective (American Foundation for the Blind, 2016-c).

Type (Style)—Font type and style (regular, bold, italics) involve the design of the letters. It is recommended that an easily recognizable font be used, such as standard Roman or sans serif fonts (Arial).

Decorative fonts and all capital letters should be avoided because they are difficult to distinguish the letters and words (American Foundation for the Blind, 2016-c). The size of the font affects the legibility of the text, especially for young children.

Background—Contrast enhances visual functioning for printed and digital text materials. Background is the color of the screen on which digital text is displayed. Contrast should also be considered as a factor when printing on colored paper. Text should be printed with the best possible contrast, dark text on light background or light text on dark background (American Foundation for the Blind, 2016-c).

Color Inversion—Inverting screen colors typically changes the background to a dark color and text to white. It is an accessibility feature used on computer displays, tablets, and smartphones.

Inversion makes text easier to read for some individuals with sensitivity to brightness, color blindness, or low vision (iMore, 2016).

Reduce Glare

Non-optical devices used to control glare that interferes with the learner's ability to see. Glare can be reduced by avoiding shiny surfaces, using sunglasses and large brimmed hats, and mini- blinds or window coverings (American Foundation for the Blind, 2016-a).

Direct Lighting

Some learners need educational materials with a layout and organization that makes it easy to know where to start and what to do. This may be accomplished by limiting the number of activities or items included on the page and increased use of white space.

Digital and Print Frames (paragraph, sentence) are the invisible boxes that contain text in software application on a computer display. The frames can be reduced or enlarged to control the amount of text seen on the page. Borders can be added to text frames.

Frames can be used to group related information, to set apart selected information, or to draw attention to information. Too many boxes of text on the same page make a document hard to read (About Tech, 2016).

Color Preference

Some learners may need enhanced visual contrast between text and background when they read print. Sheets of colored overlay transparencies can be placed over the printed materials or materials can be printed on different colors of paper. Digital tools can change the colors of the text and background (Shyyan et al., 2016). Other contrast aids include colored light bulbs used in study lamps (Georgia Project for Assistive Technology, 2014-a).

Masking

Masking involves the use of a blank card, straightedge, or card with a cut-out window to isolate text in order to increase the learner's visual attention. A student can visually track across the line of print and improve reading speed. In computer programs, an embedded masking feature may be used to cover parts of the computer screen to focus the user's attention on certain information (Shyyan et al., 2016; ISASP Accessibility and Accommodations Manual, 2019).

Word Recognition

Some learners may encounter words they don't recognize or understand when reading because they have difficulty using phonics, structural analysis, or context clues to identify words. Students who are English learners may need translations and explanations in their native language.

References and Resources

Dictionary—Learners can use English dictionaries to locate the pronunciation and definition of words. Embedded dictionaries are frequently available in e-books or digital formats. English learners may need bilingual/dual language word-to-word dictionaries (Shyyan et al., 2016). It is important that the dictionary is written on an appropriate level for the student.

Glossary—A glossary provides an alphabetical list of words with definitions used in a particular document, specific subject or area of knowledge. Embedded glossaries may be provided in e-books or digital formats.

Thesaurus—A thesaurus provides an alphabetical list of words that are synonyms or have similar meanings. Some thesauruses include antonyms.

Personal Word Lists

A learner may compile personal word lists as she encounters unknown words. The learner may also write a definition, draw a picture, or use the word in a sentence to help remember the meaning.

Text Scanning

Portable Scanning Devices—A pen scanner, hand-held scanning translator, or electronic dictionary provides the spelling, pronunciation, and definition of the word. Some devices can save a copy of the scanned text for downloading (Georgia Project for Assistive Technology, 2014-b) or transfer scanned text directly to a tablet or other device.

Scanning Software—Software used on a computer or app for a tablet or smartphone copies or scans an image. Some scanning software uses optical character recognition (OCR) to convert it to editable text in MS Word, Excel, HTML or searchable PDF files (ScanStore, 2013).

Embedded in Adobe Reader versions 6.0 and higher is a text-to- speech component, Read Out Loud, accessed from the View menu on PDF files. The volume, voice, pitch and reading rate are adjustable through program preferences (Georgia Project for Assistive Technology, 2014-c).

Repeated Reading

Having learners read passages aloud multiple times will increase fluency and comprehension. A learner may be assisted with unknown words as they read (Schumm, 1999).

Text Leveling

Text leveling provides materials for instruction with simplified vocabulary and sentences that are not as complex as materials written on grade level. It is important to ensure that the content aligns with the original materials and meets the expectations of the grade level standards.

Reading Comprehension

Supports and accommodations may be needed to assist learners who have difficulty understanding and using information provided in text. Students who have difficulty with verbal reasoning may need assistance analyzing, organizing, and synthesizing information.

Preview

Previews of important vocabulary and key points can help a learner anticipate the topics and related content in assigned passages. A learner can also scan section headings to preview content area passages.

Previewing is a comprehension strategy in which the reader scans the text and makes predictions. For example, learners work cooperatively and independently scan the text and make and then confirm predictions about text using an anticipation guide (Dennis-Shaw, 2016).

Advance Organizer/ Notes

Advanced organizers can assist a student's understanding and retention of information presented in text. The organizer may include a brief overview of content, a description of purpose, and questions to be answered. In addition, new vocabulary and explicit connections with previous lessons and background knowledge are frequently included (Chen, 2014).

A student may write notes or annotations while reading to record important concepts and details and connections with ideas in class or other texts. A student is encouraged to use his own words to describe main ideas, examples, or summary statements. He may ask himself questions about the text. A student may also use a coding system to mark things to remember.

Annotations may be written directly in the margins if the materials are consumable or written on sticky notes or a separate page. Many e- books or digital files have a notepad or comment feature for recording annotations (Gilroy, 2013; Office of Academic Support, 2016)

Study Guide

Study guides, such as note-taking forms, outlines, and graphic organizers, are used to guide a learner's attention to important content when reading text. The study guides encourage active processing of meaning and engagement with the content.

Marked Text (Bolded, Underlined, Highlighted)

A learner may mark text to identify key words and main ideas in a passage directly on consumable materials or on digital files that can be saved. Some digital formats and text-to-speech software include a highlighting feature (Shyyan et al., 2016). A learner can also use an erasable highlighter, pencil, or sticky notes for nonconsumable materials. The student will need instruction and feedback to learn how to decide which words or sentences should be marked.

Tagged Digital Text

Materials formatted in digital text may have certain elements tagged or bookmarked as quick links. A tag is a keyword or phrase assigned to an element, such as headings or subheadings in a document.

Semantic tags are used in text to link to definitions of important vocabulary. The tag helps describe an item and allows the student to find it again by browsing or searching.

Text Leveling

Text leveling provides materials for instruction using simplified vocabulary and sentences that are not as complex as materials written on grade level. Some materials include additional graphics and images to aid comprehension. It is important to ensure that the content aligns with the original materials and meets the expectations of the grade level standards.

Listening

Some learners have difficulty hearing or understanding information provided through spoken language. Students may have trouble maintaining attention or are easily distracted by external sounds and sights. Many of the supports and accommodations listed for reading comprehension can be applied for listening.

Preview

A preview introduces the topic or lesson. It may include a brief description of the activity, a description of learning objectives, as well selected information that will be important for students to know as they participate in the instruction. Previews often include actual examples of instructional activities.

Advance Organizers

Advance organizers provide a description of the learning objectives, topics and subtopics, and questions to be answered in the introduction to a lesson. The organizer helps learners think about their learning and make connections, and provides a framework for what students will be learning (Chen, 2014).

Cues

Visual and verbal cues can help a learner identify and recall topics, main ideas, and supporting details or steps or components in a process or procedure.

Repetition

A learner who has difficulty understanding and remembering oral information may need to have it repeated, paraphrased, or summarized.

Note Taking Assistance

A learner who has difficulty hearing and understanding lectures and presentations may need assistance taking notes. It is important to determine what kind of assistance the student actually needs through trials and assessment.

Graphic Organizer—A copy of a pre-formatted graphic organizer with blank areas designed to reflect the major elements of the lesson or activity can help the learner understand the structure and content of the information. The student can write notes and draw images or diagrams to add important details.

Structured Note Taking Guide—A learner can use a two-column note taking format to organize ideas for any lecture or presentation.

Structured guides may include headings and key words.

Outlined Format—The teacher can provide an outline for a student to use for taking notes. The outline may include the main headings and numbers or letters to indicate how many elements or details will be presented. Some word processing programs and online tools assist the user to organize and edit levels of information.

Audio Recorder—A student who has difficulty taking written notes may use an audio recorder or digital recording application on a computer, tablet, or smartphone to record class lectures and presentations for replay.

Copy of Notes—If the learner has difficulty taking notes independently due to hearing or motor limitations, she may be given copies of notes from the teacher or another student.

Software— A variety of note taking applications (such as Audio Note, Evernote, and Beyond) are available for use on computers, tablets, or smartphones. Features include outlining, data synchronization, PDF annotation and save, spell check, search, and printing. Some applications allow input from a keyboard, stylus, and/or voice.

Hardware—Electronic devices that help learners take notes include computers, tablets, and smartphones with applications for word processing, note taking, audio recording, and taking photos and

videos. Separate devices may also be used, such as a digital or audio recorder, camera, portable word processor, or Braille notetaker.

Auditory Enhancements

Hearing Aids—Some learners who are deaf or hard of hearing may need hearing aids. Behind-the-ear hearing aids have a microphone, amplifier and processor, volume control, tone hook, ear mold, on/off switch, and battery compartment. In educational and home settings, learners may need to connect their hearing aids to hearing assistive technology systems (American Speech-Language-Hearing Association, 2016-c).

Amplification Systems enhance the speaker's voice output in the classroom or other educational environments. The teacher's voice is transmitted from a lavaliere or hand-held microphone to amplifiers and speakers in the instructional space. **Output enhancement supports** may be needed outside of the classroom, such as in the auditorium or for movies (Audio Enhancement, 2016).

Preferred Seating—Learners may need to sit in designated locations to meet their individual needs. For example, a student who has difficulty hearing or paying attention may need to be seated near to the teacher or away from extraneous noises.

Following Directions

Many learners have difficulty following directions. They may not be able to remember the steps, or they may not understand what is required.

Picture Cues

A learner may need directions that include pictures, symbols, icons or diagrams or tactile clues.

A learner may need software with video or pictures and voice directions and a check box to move to the next step.

Written Directions

A learner may need to refer to printed copies of directions from a textbook, assessment manual, or instructional materials.

Repeat, Summarize, or Clarify Directives

A learner may need to have directions repeated or restated in simpler language. English learners may need to have directions translated (Shyyan et al., 2016).

Additional Sample Problems

Many instructional activities and assessments include a sample problem with the directions. However, a student may need more than one problem to know what to do. The number of additional problems should be determined individually. During instruction, explicit explanations (teacher think aloud) and descriptions of the critical components of the expected behaviors also help the learner.

Additional Practice

Some learners may need extended practice or additional opportunities to master certain skills beyond that which is typically provided to classmates. Many curriculum materials provide sets of additional practice materials. It is important that the materials align with the targeted learning objectives or standards.

Some learners have difficulty remembering directions or procedures and may need reminders after initial instruction. The learner may need to be asked to direct attention to the teacher each time instructions are given. The reminders may be visual, verbal, audio, or tactile, or given in combination. For example, the teacher may raise her hand to give a visual signal, and the learner may respond by raising her hand to show the teacher she is paying attention.

Levels of prompts range from most to least prompts. Prompts at the "most" level include full physical prompts, such as hand-over-hand. Modeling and gesturing are less intrusive and require that the student understand what is being modeled or demonstrated and the meaning of the gestures being used. Visual prompts (pictures, symbols, and text) and placement of objects can guide the response of the student. Verbal prompts give the student information about the expected response (Fields, n.d).

Print—Checklists, step-by-step guides, diagrams, and charts can be posted in the classroom for ready access. A learner may also need to refer to a personal copy.

Digital—Checklists, guides, diagrams, and charts can be accessed digitally on a computer, tablet, or smartphone. In addition, interactive tools, such as Story Map, Plot Diagram, Persuasion Map (www.ReadWriteThink.org) or Core Math Tools (www.nctm.org/coremathtools/) provide additional guidance.

Human—A teacher, paraprofessional, volunteer, or peer can provide verbal, audio, visual, or tactile reminders or assist the learner.

Means of Expression

Learners typically are asked to respond to classroom tasks by speaking, writing, or drawing. Classes such as physical education and dance often involve movement. Means of expression support and accommodations include alternate modes of response and other supports for students who need them.

Learners who have difficulty using speech, writing, drawing, or movement may need different ways to respond to instructional and assessment tasks. Some learners may have difficulty with communication and motor movements and may need to use an assistive technology device when responding to tasks.

Modes of Response

Visual/Sign Language

American Sign Language— Some individuals who are deaf or have difficulty communicating effectively by other means use sign language. American Sign Language, manually coded English, and fingerspelling are different types of sign language. The student must be provided opportunities for direct communications with peers and professional personnel in the child's language and communication mode (Iowa Department of Education, 2016-b).

Fingerspelling—Words are spelled using the hands to represent each letter. It is often used to represent words that have no equivalent sign or for emphasis (National Association for the Deaf, n.d.-a).

Augmentative and Alternative Communication (AAC)

AAC is a term used to refer to any form of communication except oral speech used for expressing thoughts, needs, and wants. Individuals who have difficulty communicating or have speech that is not functional may use augmentative aids, such as picture and symbol boards or electronic devices along with their own speech or to produce synthesized speech to communicate (American Speech-Language-Hearing Association, 2016-a).

Real objects may also be used for communication, often in combination with speech or sign language. Objects represent activities, locations, and people (California Deafblind Services, 2009).

Scribe/ Dictation

The **scribe** writes down what a student dictates, whether using speech, sign language, a communication system/device, or by pointing. The scribe cannot edit or change the student's words or ideas. However, the student can review and edit what the scribe has written. It is important that the scribe is familiar with the student (Shyyan et al., 2016).

Speech-to-Text (STT)—Voice recognition software converts spoken language to digital text. This feature may be incorporated in an Internet browser or computer operating system, within a software program, or as a standalone application (Georgia Project for Assistive Technology, 2014-d). Voice input is a common embedded feature of most tablets and smartphones. A learner can use voice recognition software to dictate text or enter commands to the computer, such as opening an application, locating a filename, and saving work (Shyyan et al., 2016).

Voice Recorders—A learner can state responses to classwork or assessments electronically, rather than by writing. Examples of devices include tape recorders, digital recorders, and software applications that work with microphones on computers, tablets, and smartphones.

Partner-Assisted Scanning—A strategy in which an adult or peer assists a learner with scanning or going through the response options that are part of an instruction or assessment item. The adult or peer reads and/or points to each response option, and the learner indicates when the desired choice is presented. In the case of a standardized test, a test administrator may be trained to use Partner-Assisted Scanning (Well-Moreaux, Bechard, & Karvonen, 2016).

Word Processor

A word processor, whether a stand-alone device or software application on a computer or tablet, can be used for tasks that require a learner to create a written response. Some word processing software includes embedded resources, such as a dictionary or thesaurus, and ways to format links, graphic input, and document layout. A learner using a word processor in a standardized testing situation may be required to turn off the spelling and grammar check features.

Specialized Word Processing Features

Word Prediction Software is used in conjunction with word processing software to assist the writer with input. Word prediction may include a word completion feature that suggests words based on the letters entered by the user. This type of prediction is also used on apps for the smart phone or tablet, sometimes called autocorrect. A second type of word prediction relies on two-to-three-word patterns to predict the next word. Linguistic word prediction bases the word choice on the grammar or sentence structure. The user is prompted with a list of likely word choices based on words previously typed (DO-IT Center, 2015-a; Don Johnston, Inc., n.d.).

Word prediction software can be also used for rate enhancement as it reduces the number of keystrokes required to produce a word (Georgia Project for Assistive Technology, 2014-e).

Braillewriters

A braillewriter (brailler) is a six key device used for producing hard copy Braille.

Portable Note- Taking Devices

Applications (Software)—A variety of note taking applications are available for use on computers, tablets, or smartphones. Features include outlining; data synchronization; PDF annotation; and save,

spell check, search, and printing. Some note taking software allows input from a keyboard, stylus, and/or voice.

Independent Device (Hardware)—Electronic devices may be used to help students take notes, including laptop computers, tablets, and smartphones with applications for word processing, notetaking, audio recording, and cameras. Separate devices may also be used, such as a digital recorder, camera, and portable word processor.

A **Braille notetaker** is an electronic device for reading and writing Braille with most of the capabilities of a laptop computer. Small electronic devices can be equipped with a Braille keyboard or standard keyboard for recording notes at school, home, or in the community.

Some devices have a calculator and calendar and can be connected to the Internet or personal computer to exchange files or print (American Foundation for the Blind, 2016-b; Kendrick, 2011).

Voice Enhancement

Speech Amplification—A learner who has difficulty speaking loud enough when communicating may need a personal speech amplification system. The learner may use a lavaliere or headset microphone that links with the classroom amplification system or a personal amplifier worn by the student.

Auditory Feedback—A learner who has difficulty comprehending text when reading silently may be helped by reading the text aloud. This helps the reader connect written text with spoken language.

A student can use an auditory feedback device with a mouthpiece connected by a tube to the ear. A simple device can be made from a curved piece of PVC tubing. When the student speaks into the device, the sound is directed to his ear. Such devices have been found to be useful for developing phonemic awareness, building reading accuracy, fluency, and rate by increasing attention to auditory feedback when reading aloud, and improving articulation (Kjesbo, 2011).

Handwriting

Some learners have difficulty with letter formation, letter size, letter and word spacing, or writing on or between the lines on paper due to lack of postural control, fine motor and dexterity impairments, visual impairments, visual perception difficulties, or attention problems.

Educators and parents are encouraged to consult with the local assistive technology specialist or occupational therapist for guidance.

Adaptive Writing Utensils —Alternative pencils, markers, and crayons with different diameters or pencils with softer lead may be needed by a student who has difficulty grasping or controlling writing implements. Pencil grips provide additional contact area to correct improper grasping or positioning of the hand and fingers. Triangular or pear-shaped grips or grips with finger indentations are available.

A learner who has difficulty reading what she writes due to visual problems may use high contrast writing tools. A student who exerts excessive pressure when writing may need mechanical pencils and nonabrasive erasers (Rein, 2001).

Specially Formatted Writing Paper

Specially formatted writing paper, sometimes called adaptive writing paper, provides visual or tactile cues to the lines on the paper that guide writing. Paper with wider lines, colored or shaded areas between lines, red and green lines, or raised lines that provide tactile cues may be used by a student who has difficulty with handwriting. It may help to have the student write on every other line on a standard sheet of lined paper. Gridded or graph paper helps learners organize and align digits for math computation (Rein, 2001).

Visual cues can be added to standard writing paper. Lines can be drawn to indicate the left and right margins. Sections of the page can be created for each problem or response by folding the paper, drawing lines, or covering all but a targeted area with a blank card.

Alternate Keyboard and Input Devices

A learner who lacks reliable muscle control may benefit from an alternate or adaptive keyboard. In some cases, adaptive keyboards come with specialized software with word-prediction features (WebAIM, 2016).

A learner may need to use assistive technology instead of keyboarding to provide input. For example, pointing devices, such as a mouth or headstick, sticky keys, touch screen, or trackball, may be used to interact with the computer. A student can use speech-to-text conversion or voice recognition software to dictate text or give commands to the computer (Shyyan et al., 2016).

The term, "alternative pencils," is sometimes used for students who have great difficulty holding traditional pencils or physically manipulating a keyboard. For example, students who are learning to eye gaze may use an alphabet eye gaze frame. A student learning to use switches may use a print flip chart or switch accessible onscreen keyboards. A Braille flip chart may be useful for students who are blind (Center for Literacy and Disability Studies, 2016).

Written Expression

The expression of ideas and spoken language in written words involves the selection of appropriate and effective vocabulary and sentence structure, use of correct and mechanics (grammar, punctuation, and capitalization), and organization of paragraphs and texts. Students, including English learners, who have difficulties with written expression, may need assistance and scaffolding for any of these elements of writing.

References and Resources

Dictionary—A learner may need access to a dictionary to refine word choice when writing. English learners may need a dual language dictionary or native language translator (Shyyan et al., 2016).

Dictionaries are available as printed documents, software applications, portable electronic devices, or through websites on the Internet.

Thesaurus—A thesaurus is a dictionary of words with synonyms and antonyms that a learner may use to help with word choice when writing. Thesauruses are available as printed documents, software applications, portable electronic devices, or through websites.

Word Banks—a list of words the student can refer to when writing to assist with word choice or spelling.

Templates

A student may learn a strategy or set of steps to support the creation of sentences, paragraphs, and text types. The student can use a template, checklist, or cue cards to remember what to do and how to organize information into patterns or hierarchical relationships.

Graphic Organizer—A preformatted graphic organizer provides assistance in writing different text types (expository, narrative, persuasive or argument/claim).

Checklist—Checklists provide reminders of the key components of an assignment. For example, a checklist may include the steps of the writing process (prewriting, drafting, revising, editing, and publishing). Checklists may list steps in reporting on a science experiment or explaining a solution to a math problem.

Cue Cards—Cue cards generally provide brief prompts, sometimes with pictures or symbols. For example, a student who has difficulty with the editing process can refer to common punctuation and capitalization rules depicted on a cue card.

Word Processing Features

Word processing software includes automatic spelling and grammar check features. Other features include automatic hyphenation, text alignment, and layout. A student may need assistance to learn how to correct or override errors identified by automatic features.

Spell Check—A visual signal such as a red underline appears when a word is inputted that is not present in a database of accepted spellings. Some software applications include an optional contextual spell check that helps identify words that are homophones.

Grammar Check—A visual signal, such as a green underline, appears when a sentence or phrase is identified as being grammatically incorrect.

Mathematics

Mathematics involves the knowledge and use of number systems, problem solving and reasoning, and applications. Some learners have difficulty with tasks that involve abstract mathematical concepts or complex procedures and may need accommodations and supports. Some learners have problems with memory that contribute to their lack of fluency with basic facts.

Calculators

A calculator is tool that all students are expected to use for certain learning outcomes in mathematics and science. Onscreen calculators are available as applications or within computer operating systems. A student may need a calculator for basic computation because they lack fluency with math facts and computational procedures. Some students may need adaptive calculators, such as a talking calculator or large key calculator because they have difficulty seeing the digits on the keyboard or the results on the screen. Braille calculators are included within portable Braille notetaking devices and allow for Braille entry and output.

Accessible graphing calculators and talking scientific calculators are available.

Abacus

An abacus is a mathematical device with beads that slide on rods used for counting when doing calculations (Terlau & Gissoni, 2009).

Geoboard

A physical geoboard is a square board with pegs or nails onto which learners can stretch rubber bands to represent concepts in plane geometry. Virtual geoboards are available online and as applications that can be downloaded (National Library of Virtual Manipulatives, 2016).

Tactile/ Manipulatives

Manipulatives include materials such as counters, fraction bars, tangram, and patterns. The National Library of Virtual Manipulatives is available from Matti Math (n.d.)

Tactile graphics and symbols may be used by learners with visual impairments.

Facts Chart

A learner who is not fluent with math facts may need to use a facts chart, such as a multiplication table, when solving math problems.

Visual Representations

Visual displays (paper or virtual) can be used to depict mathematical concepts and procedures using diagrams, graphs, charts, flow-charts, and computer animations.

Specialized Paper

A learner who has difficulty with calculation may need to use gridded or graph paper to align the digits when solving math problems.

Speech-to-Text

A learner who uses speech-to-text may need specialized software that supports mathematical language (graphs, formulas, etc.). For example, Math Talk/Scientific Notebook interfaces with Dragon Naturally Speaking speech to text software (http://metroplexvoice.com). Equatio digital math allows voice input to create mathematical equations, formulas, and other math applications in G Suite apps, Microsoft Word and Learning Management Systems. (https://www.texthelp.com/en-us/)

Setting

The setting involves the context and the designated instructional environment in which students are expected to learn. Setting elements involve physical aspects, such as accessibility of the building and classrooms and organization of instructional tools and materials. Some learners who have limited mobility or other physical or sensory limitations may need supports and accommodations in their instructional settings.

Physical Accessibility

Learners may need supports and accommodations to address issues related to their ability to move about in the classroom and school. Specialized equipment or conditions in the classroom may also be needed to address issues with light and sound. In addition, learners may have difficulty organizing and caring for materials and personal items used at school.

Physical Access

Educational settings should provide a barrier-free environment for all students. Many schools and public facilities have Braille signage, ramps, railings, nonslip surfaces, elevators, and automatic doors for individuals who have difficulty walking, climbing stairs, and entering the building or rooms. The 2010 ADA Standards for Accessible Design included in the Adults with Disabilities Act (ADA) are supported by Iowa Code sections 103A.7 and 104A.2. These standards specify requirements for new construction and building alterations, such as exterior routes, entries into buildings and rooms, alarms, drinking fountains, and restrooms (ADA.gov, n.d.). Learners should be able to use all parts of the school grounds and building, including classrooms, media center, cafeteria, and restrooms.

Accessible Workstations

Some learners have difficulty using standard furniture provided in the classroom. A learner may need an adaptive seating system with back support, sidebars, and positioning equipment. An adjustable workstation that raises and lowers may be needed for a learner who uses an adaptive seating system or a wheelchair. A learner may use a stander with back and leg support or a gait trainer or walker to

help him move around the room (Wistrom, 2015). Learners may also need assistance with manipulating standard instructional materials and tools or may need specialized adaptive materials and equipment. The student's needs must be addressed on a case-by-case basis with input from parents and other professionals, such as occupational or physical therapists.

Materials Placement

Angled Work Surface—A learner with postural limitations may need to use a slant board to position paper on the desk at an optimal angle for writing. This can be accomplished with a desktop that can be raised to an angle or using a slant board on top on the desk.

Tools can be used to position reading materials at a proper distance for easier reading. Examples include a tilt-top desk, bookstand, paper holder, a stand to hold an electronic tablet, or an adjustable computer screen.

Paper Stabilizer—A learner who has difficulty with fine motor control may need to have a paper stabilizer or clamp to hold the writing paper on the desk and prevent it from moving when the student is writing. A clipboard, nonslip mat, or removable tape can also be used to hold the paper in place (Rein, 2001).

Preferred Seating

Preferred seating involves placing a student's desk in a specific location in the classroom. The location depends on the needs of the student and typical activities in the classroom. Some learners need to be located in the front to be able to see information displayed on the board or screen. A learner who is easily disturbed by unexpected sights and sounds may need to be seated away from the windows, air vents, and doors. A student's desk can be also located away from busy parts of the classroom, such as a learning center or book corner. An enclosed study carrel can be used to block visible movement and reduce sounds.

Specialized Lighting

A learner who experiences eyestrain and fatigue when working in the classroom may need specialized lighting or light filters to reduce glare. The student may face away from windows or light source.

Parents should be encouraged to discuss their child's need for specialized lighting with the eye doctor or family physician (American Foundation for the Blind, 2016-c).

Reduced Acoustic Input

Some learners who have difficulty understanding spoken language or who are easily distracted may need a quiet background. Window treatments, rugs, and soft materials on the walls can reduce extraneous noise in the classroom. The teacher may need to turn off noisy equipment, including light fixtures, when they are not needed. Soft tips can be placed on the bottom on chairs and table legs to eliminate noises when the furniture is moved (American Speech- Language-Hearing Association, 2016-b; 2016-d).

Alternate Learning Environments

A learner may have to be educated in an environment away from the home classroom or school because her needs cannot be met in the regular classroom. Alternate environments include specialized schools, home or hospital settings, and residential facilities.

Space and Materials Organization

Students are expected to maintain order in their daily lives at school. For example, they need to keep instructional and personal materials organized in their desks, lockers, and backpacks. Students who

have difficulty with organization and self-regulation may be penalized because they have difficulty locating an assignment or cannot find a needed resource.

Specialized Organizational Materials—A learner may need assistance organizing their materials and supplies. For example, plastic containers with lids can be used for different kinds of tools and supplies. Bookends, trays, binders, and sorters can be used to organize textbooks, workbooks, and instructional materials.

Diagrams—A learner can refer to a diagram that shows how books, notebooks, supplies, and personal items can be arranged and stored in a locker or desk for easy access and retrieval.

Checklists—A learner can use a checklist to identify materials and supplies needed for each class. Copies of the list can be kept in the student's desk, locker, and at home.

Limit Presentation of Materials—A learner may be distracted when too many materials and supplies are available at the same time. The learner may need to have access only to items needed for a particular task.

Scheduling

Supports and accommodations for scheduling involve time allocation and time management. Learners may have difficulty maintaining effort, rate, and attention over long periods of time. Some learners are not able to monitor and manage their own use of time. Some supports and accommodations require schedule adjustments. For example, learners who use Braille materials may require extended time to complete tasks that involve reading and writing.

Time Allocation

Teachers estimate how much time each activity will take when planning instruction and assessment tasks. Some learners work at a slower pace than their peers or do better when they do not feel the pressure of completing the task in a set amount of time. Time requirements for a task can be extended or separated into segments.

Extended Time

The amount of additional time a learner requires for particular tasks should be determined on a case-by-case basis. A learner may need a range of extended time to address requirements of different types of tasks. For example a learner may need twice as much time for writing reports, but only 50% more time when tasks involves reading. Stating that a learner needs unlimited extended time is not feasible.

When providing extended time for a standardized test administration, concerns about where the student will take the test and when the test will be actually be given should be addressed (Shyyan et al., 2016).

A learner who needs extended time may be helped by having a timer to help monitor how much time remains. Sometimes a student who has extended time as a support or accommodation ends up not using the time. The student should be allowed to end the work or testing session prior to the expiration of the extended time period.

Breaks

For tasks that take a long period of time, a learner may need the opportunity to take a break and get up and move in the classroom. A learner may need an occasional break or a series of breaks when predetermined portions of the task are completed.

Schedule Adjustments

For some learners, certain tasks or activities must occur at particular time of day, day of the week, or for a certain number of days, due to external factors. Schedule adjustments may also be needed if a learner uses a medication that impacts alertness and productivity.

Time Management

Learners are expected to use their time wisely so they complete tasks based on timelines established by the teacher. Some learners have difficulty monitoring their own use of time. Students who have difficulty following instructions may forget what they are supposed to do.

Predictable Routines and Schedules

Routines and regular procedures are used in classrooms to help students know what to do. A learner may do better when regular procedures are consistently used in the classroom, because he does not effectively handle change or uncertainty. If changes in procedures are necessary, a learner may need to be told what is going to happen in advance, so it won't be a surprise.

Tasks Separated into Manageable Chunks

Lengthy assignments can be separated into parts to help a learner who has difficulty completing complex tasks. The learner may need assistance to put the parts together for the final product.

Timelines

A learner who has difficulty completing tasks within the allocated time may need a list of components and requirements with suggested completion times. An assignment planner or visual schedule can help a student identify required tasks and schedule time for working on them. A learner may also keep a journal or homework log to record assignments and deadlines.

Checklist

A learner who has difficulty managing time may benefit from using a checklist with a brief description of the tasks to be completed and a timeline. The learner can check off each task as it is completed.

Planner

A learner who has difficulty managing time can use an assignment planner, electronic device, or software application to record assignments, due dates, and make notes of progress.

Visual Schedule

Some learners may consistently need reminders of routine activities that occur throughout the day. A visual schedule can assist students with transitions and interactions in their daily schedule. Pictures and words tell the learner what activities will occur and in what sequence (Stokes, n.d.).

Alarm

A learner who has difficulty monitoring time when working may need an alarm to alert her about a coming event or the end of a period of time. The alarm may include an audio and/or visual signal. Alarms are available in clocks, timers, and other standalone timing devices and as applications for the tablet, smartphone, or computer.

Timer

A learner may need help keeping track of the amount of time allocated for a specific activity. A timer displays the passage of time and provides an audio and/or visual signal when the time is up.

Timers are available as mechanical and electronic timing devices, and as applications for the tablet, smartphone, or computer.

Reminder

A learner may need a prompt to help with time management, such as how much time is allowed, how much time is left, and when time is up. Reminders can be provided verbally, by a visual sign, audio signal, or with a light touch.

Supports and Accommodations Not Allowed for Standardized Testing

Some supports and accommodations the learner uses in the classroom may not be allowed when taking standardized assessments like the Iowa Statewide Assessment of Student Progress (2019), DLM Alternate Assessments (Well-Moreau, Bechard, & Karvonen. 2016), or ELPA21 (n.d.). Standardized tests may prohibit certain supports or accommodations because they change what the test is intended to measure and affect the test's reliability and validity. Examples of non-allowed designated supports and accommodations for statewide assessments in Iowa include:

- Calculators may not be used for the basic computation test in ISASP for Mathematics given in Grades 3-6 except with an approved accommodation.
- Text-to-speech may not be used for reading passages in English Language Arts assessments as a designated support. It is only provided for math and science tests.
- American Sign Language may not be used for English Language Arts reading or writing items.
- A test proctor, reader, or scribe may not alert a learner to an incorrect response or fix a student's incorrect response.
- A question may not be repeated again, even after the learner has selected a response in order to prompt the learner to choose a correct answer.
- Physical prompts, hand-over-hand guidance, or errorless learning may not be used.
- Answer options may not be removed and content hints may not be given.
- The content of a performance task may not be modified to give hints to the correct answer.

It is important to note that learners are provided the supports or accommodations they need to fully engage in instruction and make academic progress, even if they are not available for a statewide or districtwide assessment. However, if a student uses such an accommodation or support for instruction, it is critical that the student also have the opportunity to learn and practice the skill as it will be presented in the statewide and districtwide assessment—that is, without the support or accommodation.

Appendices

APPENDIX A

MATCHING LEARNING NEEDS WITH SUPPORTS AND ACCOMMODATIONS—AT A GLANCE

Appendix A includes charts that provide a brief description of student learning and performance difficulties with examples of appropriate supports or accommodations. It does not include a complete list of all student needs or possible supports and accommodations. A learner may require unique and novel supports or accommodations that are not included in this chart. Supports or accommodations may be used if the decision-making team determines they are appropriate. The value of any support or accommodation is measured in terms of its impact on the student's learning and performance.

Means of Representation

LEARNER NEED	SUPPORTS AND ACCOMMODATIONS
Visual Formats	
Difficulty hearing and/or using spoken language, uses sign language	American Sign Language Fingerspelling Cued speech Text to sign language (digital)
Tactile Formats	
Difficulty seeing print, uses tactile format (Braille)	Braille materials (books, documents, papers) Text-to-Braille and refreshable Braille display Nemeth code Tactile or embossed graphic symbols and images Experience and concept books; story boxes
Auditory/Oral	
Difficulty seeing print, needs auditory format Difficulty recognizing and decoding printed words, needs auditory format	Text-to-speech (TTS) (synthesized speech) Prerecorded human audio files Human reader Partner assisted scanning
English Learner	Native language translation (digital)
Multisensory	
Difficulty hearing spoken language	Closed-captioned video Telecommunication relay services
Difficulty viewing video recordings	Descriptive video
Difficulty recognizing printed words, needs text with audio	Audio with highlighted text (digital) Video recordings
Print on Demand or Hard Copy for Computer-Based and Online Information and Programs	
Difficulty using computer- based or online programs due to lack of accessibility feature or device	Printed copies of materials (regular print, large print, or Braille, Nemeth Code, tactile graphics)
Visual Enhancements	
Difficulty seeing standard print, needs enlargement	Direct lighting
Easily distracted	Reduce clutter Digital and print frames

LEARNER NEED	SUPPORTS AND ACCOMMODATIONS
Difficulty seeing print, needs color contrast	Color preference
Loses place while reading	Masking • Blank card or straightedge • Card with cut-out window • Cover portions of screen or page
Word Recognition	
Difficulty with decoding Difficulty recognizing high-frequency sight words Difficulty using structural analysis (affixes, root words) Difficulty reading fluently	References and resources • Dictionary • Glossary • Thesaurus Personal word list or word bank Text scanning: Portable scanning device Scanning software (computer) Repeated readings Text leveling Digital text (tags with links to glossary or dictionary)
Difficulty understanding language in printed text—	Presentation of Information by American Sign Language interpreter
Uses American Sign Language	English/American Sign Language or American Sign Language/English dictionary
Difficulty understanding language in printed text—English learner	English/native language or native language/English glossary, dictionary, or translation
Reading Comprehension	
Limited knowledge of vocabulary meaning Insufficient background knowledge or experience	Preview vocabulary and key points Marked text (key words, new vocabulary)
Difficulty identifying main idea and supporting details Difficulty understanding text structure Difficulty making inferences and drawing conclusions	Previewing (comprehension strategy) Advance organizer/notes Study guide Marked text (bolded, underlined, highlighted) Tagged digital text (semantic tags, headings) Text leveling
Listening	
Difficulty understanding spoken language, uses American Sign Language	Sign language interpreter English/American Sign Language or American Sign Language/English dictionary
Difficulty understanding spoken language, English learner	English/native language or native language/English glossary, dictionary, or translator
Difficulty understanding information presented orally Difficulty maintaining attention	Preview Advance organizer Cues
Difficulty remembering information presented orally	Repetition Note-taking assistance • Graphic organizer • Structured note-taking guide • Outlined format • Audio recorder

LEARNER NEED	SUPPORTS AND ACCOMMODATIONS
	• Copy of notes • Software • Hardware
Difficulty hearing spoken language	Auditory enhancements • Hearing aids • Amplification system (output enhancement support) • Preferential seating
Following Directions	
Difficulty remembering steps and procedures Difficulty understanding what is expected Lack of attention to detail Impulsive, easily distracted	Directions with picture cues Copy of written directions Repeat, summarize, or clarify directions Additional sample problems Additional practice Reminders (print, digital, human)

Means of Expression

LEARNER NEED	SUPPORTS AND ACCOMMODATIONS
Mode of Response	
Difficulty with expressive language—uses American Sign Language	Visual/sign language • American Sign Language • Fingerspelling
Difficulty speaking	Augmentative and alternative communication device Real objects
Difficulty using handwriting	Scribe/dictation Speech-to-text Voice recorder Partner assisted scanning Word processor/computer
Speed of writing is too slow to keep pace with language	Specialized word processing features Word prediction software Portable note-taking devices • Applications (software) • Independent device (hardware)
Uses Braille for writing	Brailler, Braillewriter, Braille notetaking devices, Braille output devices, slate and stylus
Speech is hard to understand	Voice enhancement • Speech amplification • Auditory feedback
Handwriting	
Lack of coordination, weakness Inadequate pencil grasp Uses excessive pressure when writing Lack of endurance for writing Illegible handwriting	Adaptive writing utensils • Adaptive pencil, marker or crayon • High-contrast writing tool • Mechanical pencil • Nonabrasive eraser • Pencil or pen grip, crayon, spacer
Poor eye-hand coordination Errors in letter and word formation or spacing Visual perceptual or spatial-orientation difficulties Illegible handwriting	Specially formatted writing paper • Colored or raised line • Gridded paper • Visual cues on paper (stop, start, margins)

LEARNER NEED	SUPPORTS AND ACCOMMODATIONS
Difficulty using standard keyboard	Alternate keyboard or assistive device • Mouse, specialized keyboard, or assistive technology to indicate answers • Computer switch, pointing device or other communication device to indicate answers • Alternative pencils (eye gaze, flip charts)
Written Expression	
Inadequate vocabulary and expressive language skills Expresses ideas orally but has difficulty converting into written language	References and resources • Dictionary (print, digital) • Thesaurus (print, digital) • Word bank Word prediction software
Difficulty organizing information Difficulty identifying ideas for writing	Templates • Graphic organizer • Checklist • Cue card
Inadequate grammar and mechanics or skills Inconsistent spelling, phonetic spelling Insufficient memory for frequently used words	Word processing features: spell check and grammar check Word bank
Mathematics	
Difficulty with computation fluency	Calculator (adapted calculator, talking calculator) Abacus Geoboard Fact charts Tactile manipulatives Visual representations
Difficulty with procedural skills or problem solving	Specialized paper (gridded paper or guide) Speech-to-text (supports mathematical language)
Difficulty with conceptual knowledge or application	Tactile manipulatives Visual representations Geoboard

Setting

LEARNER NEED	SUPPORTS AND ACCOMMODATIONS
Physical Access	
Lack of mobility Difficulty opening doors Difficulty seeing print on signs	Physical access (for example, Braille signage, ramps, nonslip surfaces, railings, automatic doors, and elevators)
Motor impairments	Accessible workstation Adaptive chairs and tables (height-adjustable work surface) Physical support or positioning devices
Weak postural control Difficulty holding print materials open Difficulty reading on flat surfaces	Materials placement • Angled work surface • Paper stabilizer • Tools to position reading materials
Difficulty hearing, seeing, or maintaining attention and effort	Preferred seating

LEARNER NEED	SUPPORTS AND ACCOMMODATIONS
Sensory limitations	Specialized lighting Reduced acoustic input
Needs that can only be met in a specialized setting	Alternate learning environment
Organization of Space and Materials	
Difficulty organizing work space, personal space, textbooks, and materials	Specialized organizational materials Diagram for storage of materials Checklist of required materials and tools Limit presentation of materials

Scheduling

LEARNER NEED	SUPPORTS AND ACCOMMODATIONS
Time Allocation	
Works slowly Use of support or accommodation that requires more time Medical condition affects effort	Extended time (specify amount or range) Breaks Schedule adjustments • Preferred time of day • Preferred day of week
Time Managements	
Short attention span Difficulty staying on task until completion Easily distracted Completes assignments quickly but inaccurately	Predictable routines and procedures Task separated into manageable chunks Timelines Timer Alarm
Difficulty remembering what to do	Checklist of individual responsibilities Planner Visual schedule Reminder

APPENDIX B

CROSSWALK OF ACCESSIBILITY FRAMEWORKS FOR STATEWIDE ASSESSMENTS IN IOWA

This chart compares features of the accessibility frameworks of Iowa Statewide Assessment of Student Progress (ISASP), the English Language Proficiency Assessments 21, Dynamic Learning Maps®, and FAST assessments.

- Features are organized by Means of Representation (Presentation) and Means of Expression (Response), Setting, and Schedule
- Features that are part of the online testing system are Embedded (E).
- Features that are external to the online system are Non-Embedded (NE).
- Features that are available for English Learners are marked EL.
- Terminology differs across the assessments. See the following comparison:

Assessment	Terminology
ISASP	Universal Features Designated Features Accommodations
ELPA21	Universal Features Designated Features Accommodations
DLM	Accessibility

Crosswalk of Accessibility Frameworks for Statewide Assessments in Iowa
Iowa Statewide Assessment of Student Progress (ISASP), English Language Proficiency
Assessment 21 (ELPA21), Dynamic Learning Maps® (DLM), and FAST

Means of Representation (Presentation)	Assessment	E or NE
Bilingual dictionary	ISASP Designated Feature	NE
Pop-up English glossary	ISASP Universal Feature	E
Exhibits	ISASP Universal Feature ELPA21 Universal Feature	E E
Expandable passages	ISASP Universal Feature ELPA21 Universal Feature	E E
Highlighter (digital feature)	ISASP Universal Feature ELPA21 Universal Feature	E E
Keyboard navigation	ISASP Universal Feature ELPA21 Universal Feature	E E
Bookmark	ISASP Universal Feature	E
Flag for review	ELPA21 Universal Feature	E
Zoom (enlarge text and graphics on given screen)	ISASP Universal Feature ELPA21 Universal Feature	E E
Turn off a universal tool	ISASP Universal Feature ELPA21 Designated Feature	E E
Line Reader Mask	ISASP Universal Feature	E or NE
General masking (block off answer choices, navigational buttons, focus on part of item)	ELPA21 Designated Feature	E
Line reader	ELPA21 Designated Feature	E
Translated test directions (online math directions)	ISASP Accommodation	E

Means of Representation (Presentation)	Assessment	E or NE
Native language translation of test directions by test administrator or prerecorded audio file (ASL, Arabic, Chinese–Cantonese and Mandarin, Karen, Korean, Marshallese, Russian, Somali, Spanish, Vietnamese)	ISASP Designated Feature ELPA21 Designated Feature	NE NE
Translations to Spanish with text to speech (Math and Science)	ISASP Accommodation	E
Language translation of test Read aloud in Spanish	DLM Accessibility	NE
Bilingual dictionary	ISASP Designated Feature	NE
Color contrast	ISASP Designated Feature ELPA21 Designated Feature DLM Accessibility	E E E
Invert color choice	ISASP Designated Feature ELPA21 Designated Feature DLM Accessibility	E E E
Color overlay (colored transparencies on paper-based materials)	ISASP Designated Feature ELPA21 Designated Feature DLM Accessibility	NE NE NE
Color overlay (embedded only works with black text on white background)	ELPA21 Designated Feature DLM Accessibility	E E
Magnifying glass (embedded feature or external device)	ISASP Designated Feature DLM Accessibility ELPA21 Designated Feature FAST (text magnification)	NE E E E or NE
Magnification device (assistive technology device to adjust size of areas of the screen— can be made larger than zoom)	ISASP Designated Feature ELPA21 Designated Feature	E E
Large print test booklet	ISASP Accommodation ELPA21 Accommodation	NE NE
Braille (includes Nemeth code for math) Braille (contracted and non-contracted) Refreshable Braille	ISASP Accommodation ELPA21 Accommodation DLM Accessibility	NE NE NE
Human Read aloud in paper format (for grades 6-11 for all or parts of assessment content, for grades 3-5 math and science only)	ISASP Designated Feature	NE
Read aloud audio file or human reader	ELPA21 Universal Feature DLM Accessibility	NE NE
Read aloud with highlighting (text, text and graphics, graphics, nonvisual)	DLM Accessibility	E
Text to Speech (for all grades in math and science, for grade 6-11 in ELA) synchronized onscreen highlighting (text, image descriptions)	ISASP Designated Feature	E
Student reads test aloud (requires separate setting)	ISASP Designated Feature ELPA21 Designated Feature	NE
Human signer/Sign language interpretation for test directions	ISASP Accommodation	NE

Means of Representation (Presentation)	Assessment	E or NE
American Sign Language	DLM Accessibility	NE
Print on demand (passages, stimuli, items)	ELPA21 Designated Feature (individual items on request)	E
Paper pencil test	ISASP Accommodation ELPA21 Designated Feature FAST (available for CBM measures)	NE NE E or NE
Amplification (raise or lower volume on headphones) or using volume controls within audio or video players	ISASP Universal Feature ELPA21 Universal Feature FAST	E E E
Audio support (student can hear pre-recorded audio of tasks for speaking, listening, except editing, reading—only for read along tasks, and all K tasks and items)	ELPA21 Universal Feature	E
Test administered on an iPad Test administered on a tablet (iPad, Chromebook)	DLM Accessibility FAST	E E
Individualized manipulatives	DLM Accessibility	NE
Turn off a universal feature	ISASP Designated Feature ELPA21 Designated Feature	E E

Means of Expression (Response)	Assessment	E or NE
Calculator (for calculator allowed items) May use calculator with assistive technology device Adapted calculator	ISASP Universal Feature ISASP Universal Feature (approved model) ISASP Accommodation	E or NE NE NE
Math tools (Equation Editor)	ISASP Universal Feature	E
Digital notepad (serves as virtual scratch paper)	ISASP Universal Feature ELPA21 Universal Feature	E E
Strikethrough (cross out answer choices) Answer Eliminator	ISASP Designated Feature	E
Writing tools (format and edit – cut, copy paste, underline, italicize, bold, undo/redo, bullets, numbered list, character picker, spellcheck)	ISASP Universal Feature ELPA21 Universal Feature	E E
Scratch paper	ISASP Universal Feature ELPA21 Universal Feature (may use assistive technology device)	NE NE
Turn off a universal tool	ISASP Universal and Designated Feature ELPA21 Designated Feature	E E
Speech-to-text	ISASP Accommodation ELPA21 Accommodation	NE NE
Scribe	ISASP Accommodation ELPA21 Accommodation	NE NE
Answer orally	ELPA21 Accommodation	NE
Test administrator enters responses for	DLM Accessibility	NE

Means of Expression (Response)	Assessment	E or NE
student		
Partner assisted scanning	DLM Accessibility	NE
Abacus	ISASP Accommodation	NE
Multiplication table	ISASP Accommodation	NE
Answer choice eliminator (student controlled) for multiple choice, hot spots	ISASP Universal Feature ELPA21 Universal Feature	E
Untimed rerecording of answers	ELPA21 Accommodation	E
Unlimited replays	ELPA21 Accommodation	E
Assistive technology devices (examples are provided in specific assessment manuals) Adaptive equipment Communication board or device Braille writer or note taker	ISASP Universal, Designated Feature or Accommodation ELPA21 Accommodation DLM Accessibility	NE NE NE
Single switch system	DLM Accessibility	NE
Two switch system	DLM Accessibility	NE
Individualized manipulatives	DLM Accessibility	NE

Setting	Assessment	E or NE
Bilingual dictionary	ISASP Designated Feature	NE
Pop-up English glossary	ISASP Universal Feature	E
Exhibits Expandable passages	ISASP Universal Feature ELPA21 Universal Feature	E E
Highlighter (digital feature)	ISASP Universal Feature ELPA21 Universal Feature	E E

Schedule	Assessment	E or NE
Breaks	ISASP Universal Feature FAST (FAQ—pause button)	NE E & NE
Extended time	ISASP Universal Feature	NE
Turn off a universal tool	ISASP Universal Feature ELPA21 Designated Feature	E E

DLM Unallowable Supports

- Repeating the question again, even after the student has selected a response, in order to prompt the student to choose a different response
- Using physical prompts or hand-over-hand guidance
- Reducing the number of response options or giving content hints
- Using symbols or pictures to represent response options that appear as text in the testlet
- Modifying the content of a performance task in a computer-administered testlet in an attempt to help the student arrive at the correct response
- Using word or picture banks during writing testlets
- Taking dictation of whole words or sentences from the student in writing testlets
- Changing tone, inflection, or body language to cue the correct response when reading testlets to student

FAST (FAQ about Accommodations)

Accommodations related to a student's disability are allowed, and decided by the IEP team. If they are used, be sure to include a description of those procedures whenever the score is reported or used to guide instruction. Accommodations are provided that allow students to access the assessment while holding the purpose of the assessment constant. For example, with a reading fluency assessment, it is inappropriate to either read the assessment to the student or change the nature of the timing of the assessment, as those modifications alter the ability to assess the student's reading fluency. The test developers at FAST/Fast Bridge Learning do allow for the following accommodations:

- FAST's CBM measures are available via paper-pencil as needed for any reason.
- Text magnification
- Sound amplification
- Extended time in the following measures: aReading, and untimed portions of Early Reading
- Extra breaks
- Preferential seating and use of quiet space
- Students with differing needs or disabilities may take the computer-based assessments such as aReading via a tablet-type device (e.g., Chromebook, iPad, etc.) facilitating screen optimization (Thatcher, 2015).

Not allowed for FAST

- Prior silent reading of the passage by the student
- Copies of passages sent home for practice

APPENDIX C

ONLINE RESOURCES

Learning Supports

[Multi-Tiered System of Supports (MTSS)](#)

[Intervention System Guide](#)

[Positive Behavior Interventions and Supports](#)

[Early Childhood Iowa](#)

[Special Education](#)

[Iowa's Guidance for Quality Individualized Education Programs (IEPs)](#)

[Specially Designed Instruction (SDI)](#)

[Section 504](#)

[School District Responsibilities under Section 504 of the Rehabilitation Act](#)

[Section 504 Educator Guide](#)

[Iowa True AIM](#)

[Iowa Department for the Blind: Student Resources](#)

[English Learners](#)

[Early Childhood Special Education](#)

[At-Risk](#)

[Alternative Education](#)

[Dropout Prevention](#)

[Iowa Learning Online (ILO)](#)

[Invited In: Measuring UDL in Online Learning](#)

[UDL Scan Tool](#)

[No-Mouse Challenge](#)

Statewide Assessment Accessibility

[Iowa GOLD Online Assessment System (Preschool)](#)

[Iowa's Alternate Assessments for Students with Significant Cognitive Disabilities](#)

[Dynamic Learning Maps®](#)

[Dynamic Learning Maps® Iowa](#)

[English Language Proficiency Assessment for the 21st Century (ELPA21)](#)

[ELPA21 Accessibility and Accommodations](#)

[Iowa Statewide Assessment of Student Progress (ISASP)](#)

[Approved Literacy Assessments](#)

[Iowa's K-6 Early Literacy Alternate Assessment](#)

References

About Tech. (2016). Text frame. Retrieved from
http://desktoppub.about.com/od/glossary/g/textframe.htm

ADA.gov. (n.d.). ADA standards for accessible design. Information and technical assistance on the Americans with Disabilities Act. Civil Rights Division, United States Department of Justice. Retrieved from https://www.ada.gov/2010ADAstandards_index.htm

American Association for the Advancement of Science (AAAS). (2016). Welcome to the AAAS Project 2061 science assessment website. Retrieved from http://assessment.aaas.org

American Foundation for the Blind. (2014). Screen readers. Retrieved from
http://www.afb.org/prodBrowseCatResults.asp?CatID=49

American Foundation for the Blind. (2016-a). Glare. Retrieved from
http://www.afb.org/section.aspx?SectionID=65&TopicID=298&DocumentID=3239

American Foundation for the Blind. (2016-b). Note taking: 39 products for task. Retrieved from
http://www.afb.org/ProdBrowseTaskResults.asp?TaskID=451&SpecID=26

American Foundation for the Blind. (2016-c). Tips for making print more readable. Retrieved from
http://www.afb.org/info/living-with-vision-loss/reading-and- writing/making-print-more-readable/235

American Foundation for the Blind. (2016-d). Tools for reading print visually. Retrieved from
http://www.afb.org/info/reading-and-writing/tools-for-reading-print-visually-6247/35

American Foundation for the Blind. (2016-e). Video magnifiers. Retrieved from
http://www.afb.org/info/living-with-vision-loss/using-technology/assistive- technology/video-magnifiers-221/1235

American Foundation for the Blind. (2016-f). What is Braille? Retrieved from
http://www.afb.org/info/living-with-vision-loss/braille/what-is-braille/123

American Speech-Language-Hearing Association. (2016-a). Augmentative and alternative communication. Retrieved from http://www.asha.org/slp/clinical/aac.htm

American Speech-Language-Hearing Association. (2016-b). Classroom acoustics. Retrieved from
http://www.asha.org/public/hearing/classroom.htm

American Speech-Language-Hearing Association. (2016-c). Hearing aids for children. Retrieved from
http://www.asha.org/public/hearing/Hearing-Aids-for-Children/

American Speech-Language-Hearing Association. (2016-d). Tips for creating a good listening environment in the classroom. Retrieved from http://www.asha.org/public/hearing/Creating-a-Good-Listening-Environment-in-the- Classroom/

Audio Enhancement. (2016). Classroom audio systems. Retrieved from
https://www.audioenhancement.com/products/classroom-audio-solutions/ American Foundation for the Blind. (2014). Screen readers. Retrieved from http://www.afb.org/prodBrowseCatResults.asp?CatID=49

Beech, M. (in press). *Accommodations: A guide for educators (4th ed.)*. Tallahassee, FL: Bureau of Exceptional Education and Student Services, Florida Department of Education.

Beech, M., Dixon, S. & McKay, J. (2013). *Selecting accommodations: Guidance for individual educational plan teams*. Tallahassee, FL: Bureau of Exceptional Education and Student Services, Florida Department of Education. Retrieved from http://fldoe.org/core/fileparse.php/7690/urlt/0070064-selectingaccommodations.pdf

Benetech. (2016). Buy accessible: What to look for in ebooks. Retrieved from http://www.benetech.org/our-programs/literacy/born-accessible/accessible-ebooks-what- to-look-for/

Bookshare. (2016). Who qualifies? Retrieved from https://www.bookshare.org/cms/bookshare-me/who-qualifies

Bowser, G., & Reed, P. (2007). *Hey? Can I try that? A student handbook for choosing and using assistive technology*. Oregon Technology Access Program and Assistive Technology Initiative. Retrieved from http://www.wati.org/content/supports/free/pdf/HeyCanITryThat08.pdf

Braille Authority of North America. (1972). *The Nemeth Braille Code for Mathematics and Scientific Notation: 1972 Revision*. Retrieved from http://www.brailleauthority.org/mathscience/nemeth1972.pdf

Bulgren, J.A., Schumaker, J.B., & Deshler, D.D. (1993). *The concept mastery routine*. Lawrence, KS: Edge Enterprises.

California Deafblind Services. (2009, April 3). 04 Object communication. Retrieved from http://www.cadbs.org/news/a04-object-communication/

Chen, B. (2014, June 27). Advance organizer. In K. Thompson and B. Chen (Eds.), *Teaching Online Pedagogical Repository*. Orlando, FL: University of Central Florida Center for Distributed Learning. Retrieved from https://topr.online.ucf.edu/index.php?title=Advance_Organizer&oldid=3589

Center for Literacy & Disabilities Studies. (2016). Writing with alternative pencils. University of North Carolina at Chapel Hill. Retrieved from http://www.med.unc.edu/ahs/clds/products/available-for-purchase

DeCoste, D., & Wilson, L.B. (2014). *Protocol for accommodations in reading (2nd ed.)*. Volo: Don Johnston Incorporated. eBook. Retrieved from http://donjohnston.com/par

Dennis-Shaw, S. (2016). Guided comprehension: Previewing using an anticipation guide. Read Write Think, National Council of Teachers of English. Retrieved from http://www.readwritethink.org/classroom-resources/lesson-plans/guided-comprehension- previewing-using-226.html

Described and Captioned Media Program. (2008, September). Captioning types, methods, and styles. National Association for the Deaf. Retrieved from https://dcmp.org/caai/nadh38.pdf

Division of Elementary and Secondary Education. (2015). *Educating Iowa's English learners (EL): A handbook for administrators and teachers*. Iowa Department of Education. Retrieved from https://www.educateiowa.gov/sites/files/ed/documents/ELHandbook- May2013%28Revised%29.pdf

DO-IT Center. (2015-a, August 24). What does word prediction software do? University of Washington. Retrieved from https://www.washington.edu/doit/what-does-word-prediction-software-do?96

DO-IT Center. (2015-b, August 25). What is Nemeth Code? University of Washington. Retrieved from http://www.washington.edu/doit/what-nemeth-code

Don Johnston, Inc. (n.d.). Word prediction—What's good enough? Retrieved from http://donjohnston.com/word-prediction-whats-good-enough/

English Language Proficiency Assessment for the 21st Century. (2014). ELPA21 deliverables. Retrieved from http://www.elpa21.org/assessment-system/elpa21-deliverables

English Language Proficiency Assessment for the 21st Century. (n.d.). Accessibility and accommodations manual: School year 2015–2016. Retrieved from http://www.elpa21.org/sites/default/files/Accessibility%20and%20Accommodations%20Manual_SY15_16.pdf

Ertmer, P. A., & Newby, T. J. (1996). The expert learner: Strategic, self-regulated, and reflective. Instructional Science, 24: 1-24. Retrieved from https://www.brown.edu/about/administration/sheridan-center/sites/brown.edu.about.administration.sheridan- center/files/uploads/ErtmerNewby1996_0.pdf

Federal Communication Systems. (2015, November 5). Telecommunications relay systems (TRS). Retrieved from https://www.fcc.gov/consumers/guides/telecommunications-relay-service-trs

Fields, C.J. (n.d.). Tips for home or school: Using the system of least to most prompts. Nevada Dual Sensory Impairment Project, University of Nevada. Retrieved from http://www.unr.edu/ndsip/tipsheets/UsingLeasttoMostPrompts.pdf

Fisher, D. (2008). Effective use of the gradual release of responsibility model. Author Monographs. Macmillan/McGraw Hill. Retrieved from http://www.epd-mh.com/mhpd_assets/Effective_Use_Douglas_Fisher.pdf

Georgia Project for Assistive Technology. (2014-a). Contrast aids. Retrieved from http://www.gpat.org/Georgia-Project-for-Assistive-Technology/Pages/Contrast-Aids.aspx

Georgia Project for Assistive Technology. (2014-b). Handheld scanners. Retrieved from http://www.gpat.org/Georgia-Project-for-Assistive-Technology/Pages/Handheld- Scanners.aspx

Georgia Project for Assistive Technology. (2014-c). PDF reader software. Retrieved from http://www.gpat.org/Georgia-Project-for-Assistive-Technology/Pages/PDF-Reading- Software.aspx

Georgia Project for Assistive Technology. (2014-d). Voice recognition software. Retrieved from http://www.gpat.org/Georgia-Project-for-Assistive- Technology/Pages/WS-Voice-Recognition.aspx

Georgia Project for Assistive Technology. (2014-e). Word prediction software. Retrieved from http://www.gpat.org/Georgia-Project-for-Assistive-Technology/Pages/WS-Word- Prediction-Software.aspx

Gerritsen, B. (2016). What are low vision optical devices? Vision Aware, American Foundation for the Blind. Retrieved from http://www.visionaware.org/info/everyday- living/helpful-products/overview-of-low-vision-devices/low-vision-optical-devices/1245

Gilroy, S. (2013). Interrogating texts: 6 reading habits to develop in your first year at Harvard. Harvard Library Research Guide. Retrieved from http://guides.library.harvard.edu/ld.php?content_id=12548868

iMore. (2016). How to invert screen colors for visual accessibility on the iPhone and iPad. Retrieved from http://www.imore.com/how-invert-screen-colors-iphone-and-ipad

Iowa Department for the Blind. (2015-a, April 14). Student textbook educational materials list of formats. Retrieved from https://blind.iowa.gov/student-textbook-educational-materials-list-formats

Iowa Department for the Blind. (2015-b, April 23). Eligibility guidelines. Retrieved from https://blind.iowa.gov/library/eligibility-guidelines

Iowa Department for the Blind. (2015-c, May 13). Student resources. Retrieved from https://blind.iowa.gov/library/student-resources

Iowa Department of Education. (2008, December). *School district responsibilities under Section 504 of the Rehabilitation Act*. Retrieved from https://www.educateiowa.gov/documents/learner-supports/2013/10/entire-section-504-manual

Iowa Department of Education. (2010-a, November 17). *Iowa core: English language arts and literacy in history/social studies, science, and technical subjects*. DOKs added December 2012. Retrieved from https://iowacore.gov/sites/default/files/k-12_literacy.pdf

Iowa Department of Education. (2010-b, November 17). *Iowa core: Mathematics. DOKs added December 2012*. Retrieved from https://iowacore.gov/sites/default/files/k- 12_mathematics_0.pdf

Iowa Department of Education. (2012). Iowa early learning standards 2012. Retrieved from https://www.educateiowa.gov/sites/files/ed/documents/IowaEarlyLearningStandards2012-Aug2013.pdf

Iowa Department of Education. (2013-a, April 14). Strategies for differentiating instruction. Retrieved from https://www.educateiowa.gov/sites/files/ed/documents/0809_pk12_dl_StrategiesForDifferentiatingInstruction.pdf

Iowa Department of Education. (2013-b, October 8). Iowa core essential elements English language arts for students with significant cognitive disabilities. Retrieved from https://iowacore.gov/sites/default/files/iowacoreessentialelements-literacy.pdf

Iowa Department of Education. (2014, May). Collaborative inquiry questions linked to the use of special education funds (MTSS and use of special education funds). Retrieved from https://www.educateiowa.gov/sites/files/ed/documents/CollaborativeInquiryQuestionsandUseofSpedFunds.pdf

Iowa Department of Education. (2015-a, October). Section 504 educator guide. Retrieved from https://www.educateiowa.gov/sites/files/ed/documents/Section%20504%20Educator%20Guide.pdf

Iowa Department of Education. (2018, August). Iowa's specially designed instruction framework Revised. Des Moines, IA: Author.

Iowa Department of Education. (2016-a). About ILO. Retrieved from http://iowalearningonline.org

Iowa Department of Education. (2016-b). Directions for Iowa's IEP communication plan for a student who is deaf or hard of hearing. Retrieved from https://www.educateiowa.gov/sites/files/ed/documents/Directions%20for%20IEP%20Communication%20Plan%20for%20Student%20Who%20is%20Deaf%20or%20Hard%20of%20Hearing.pdf

Iowa Department of Education. (2016-c). Guidance for quality IEPs: Assistive technology and NIMAS. Retrieved from https://www.educateiowa.gov/pk-12/special-education/iowas-guidance-quality-individualized-education-programs-ieps/assistive

Iowa Department of Education. (2016-d). Guidance for quality IEPs: Present levels of academic achievement and functional performance (PLAAFP), Ages 3-12. Retrieved from https://www.educateiowa.gov/pk-12/special-education/iowas-guidance-quality- individualized-education-programs-ieps/present-levels#15

Iowa Department of Education. (2016-e). Guidance for quality IEPs: Special education services, activities, and supports. Retrieved from https://www.educateiowa.gov/pk- 12/special-education/guidance-quality-ieps/special-education-services-activities-and- supports#5

Iowa Department of Education. (2016-f). Multi-tiered system of supports. Retrieved from https://www.educateiowa.gov/pk-12/learner-supports/iowas-multi-tiered-system-supports-mtss

Iowa Department of Education. (2016-g). Secondary transition. Retrieved from https://www.educateiowa.gov/pk-12/special-education/special-education-programs-services/secondary-transition

Iowa Department of Education. (2016-h). Special education. Retrieved from https://www.educateiowa.gov/pk-12/special-education

Iowa Department of Education. (2016-i) Statewide voluntary preschool program for 4-year-old children: Assessment GOLD online assessment system. Retrieved from https://www.educateiowa.gov/pk-12/early-childhood/statewide-voluntary-preschool-program-four-year-old-children

Iowa Department of Education. (2016-j). True AIM. Retrieved from https://www.educateiowa.gov/pk-12/learner-supports/true-aim

Iowa Department of Education. (2016-k). True AIM: Acquisition of accessible instructional materials. Retrieved from https://www.educateiowa.gov/pk-12/learner-supports/true-aim/acquisition-accessible-instructional-materials-aim

Iowa Department of Education. (2016-l). True AIM: Establishing student need. Retrieved from https://www.educateiowa.gov/pk-12/learner-supports/true-aim/establishing-student-need-aim

Iowa Department of Education. (2016-m, March 9). Facilitation guide question D2: If the universal tier is not sufficient, what needs must be addressed? (Ver. 2.3). Retrieved from https://www.educateiowa.gov/sites/files/ed/documents/UniversalInstructionFacilitationGu ide.pdf

Iowa Department of Education. (2016-n, April). Intervention system guide, Ver 2.1. Retrieved from https://www.educateiowa.gov/sites/files/ed/documents/IS%20DA%20Guide%20v2- 1.pdf

Iowa Department of Education. (2016-o August). Approved literacy assessments. Retrieved from https://www.educateiowa.gov/sites/files/ed/documents/2016- 2017ApprovedLiteracyAssessments_0.pdf

Kendrick, D. (2011, July). Note-taking 101: How blind and visually impaired people capture information. AFB AccessWorld® Magazine, 12. Retrieved from http://www.afb.org/afbpress/pub.asp?DocID=aw120704

Kitchel, J.E. (n.d.). APH guidelines for print document design. American Printing House for the Blind. Retrieved from http://www.aph.org/research/design-guidelines/

Kjesbo, R. (2011). Listen to yourself: Auditory feedback devices. Handy Handouts Number 313. Super Duper Publications. Retrieved from https://www.superduperinc.com/handouts/pdf/313%20Auditory%20Feedback%20Device s.pdf

Lenz, B.K., Deshler, D.D., & Kissam, B. (2004). Teaching content to all: Evidenced- based inclusive practices in middle and secondary schools: Boston: Pearson/Allyn Bacon.

Matti Math. (n.d.). What is Matti math? Retrieved from https://www.mattimath.com

Meyer, A., Rose, D. H., & Gordon, D. (2013). *Universal design for learning: Theory and practice [Kindle ed.]*. Wakefield, MA: Center for Applied Special Technology, Inc.

National Association of the Deaf. (n.d.-a). Learning American Sign Language. Retrieved from http://nad.org/issues/american-sign-language/learning-american-sign-language

National Association of the Deaf. (n.d.-b). What is American Sign Language? Retrieved from http://nad.org/issues/american-sign-language/what-is-asl

National Center on Accessible Educational Materials. (2015, May). AEM navigator print version. Wakefield, MA, Author. Retrieved from http://aem.cast.org/about/publications/2015/accessible-educational-materials-navigator-print.html#.XCzx6lVKhMx

National Center on Universal Design for Learning. (2014, July 21). UDL and expert learners. Retrieved from http://www.udlcenter.org/aboutudl/expertlearners

National Cued Speech Association. (2016). What is cued speech? Retrieved from http://cuedspeech.org

National Institute on Deafness and Other Communication Disorders. (2015, July 24). American Sign Language. National Institutes for Health. Retrieved from https://www.nidcd.nih.gov/health/american-sign-language

National Library of Virtual Manipulatives. (2016). Geoboards. Utah State University. Retrieved from http://nlvm.usu.edu/en/applets/doc/geoboard/help.html

Office of Academic Support. (2016). Annotating textbooks. Niagara University. Retrieved from http://www.niagara.edu/assets/listpage/Annotating-Textbooks.pdf

Pacer Center. (n.d.). Help your young adult learn about accessing accommodations after high school. Retrieved from http://www.pacer.org/parent/php/php-c165.pdf

Reed, P., Bowser, G., & Korsten, J. (2002). How do you know it? How can you show it? Wisconsin Assistive Technology Initiative. Retrieved from http://dpi.wi.gov/sites/default/files/imce/sped/pdf/at-know-it-show-it.pdf

Rein. J. (2001 reprint). Adapted pencils to computers: Strategies for improving writing. Columbia, MD: Center for Technology in Education, Johns Hopkins University and the Maryland State Department of Education. Retrieved from http://www.cte.jhu.edu/monographs/adapted%20pencils.pdf

ScanStore. (2013). Document imaging and OCR solutions. Retrieved from http://www.scanstore.com/Scanning_Software/

Schumm, J.S. (1999). *Adapting reading and math materials for the inclusive classroom.* Reston, VA: Council for Exceptional Children.

Shyyan, V., Thurlow, M., Christensen, L., Lazarus, S., Paul, J., & Touchette, B. (2016). *CCSSO accessibility manual: How to select, administer, and evaluate use of accessibility supports for instruction and assessment of all students*. Washington, DC: CCSSO. Retrieved from http://www.ccsso.org/Resources/Publications/CCSSO_Accessibility_Manual_How_To_Select_Administer_And_Evaluate_Use_Of_Accessibility_Supports_For_Instruction_And_Assessment_Of_All_Students.html

Smith, S. J. (2016, January 28). Invited in: Measuring UDL in online learning. The Center for Online Learning and Students with Disabilities. Retrieved from http://centerononlinelearning.org/publications/featured-publications/

Stokes, S. (n.d.). Visual schedules. Cooperative Educational Service Agency No. 7, Green Bay, WI. Retrieved from http://www.cesa7.org/sped/autism/structure/str11.htm

Teaching Strategies for Early Childhood. (2011). Teaching strategies GOLD: Frequently asked questions for decision makers. Retrieved from http://shop.teachingstrategies.com/content/pageDocs/teaching-strategies-gold-assessment-FAQs.pdf

Terlau, T. & Gissoni, F. (2009, June). Position Paper: Appendix D: Use of an abacus in test-taking situations, " TEST ACCESS: Making tests accessible for students with visual impairments: a guide for test publishers, test developers, and state assessment personnel, American Printing House for the Blind. Retrieved from http://www.aph.org/accessible-tests/position-papers/abacus-in-test-taking/

Thatcher, E. (2015, November 16). FAST frequently asked questions. Retrieved from https://www.aea267.k12.ia.us/system/assets/uploads/files/2974/faq_table_fast_-_11.16.15.pdf

WebAIM. (2016). Adaptive keyboard. Retrieved from http://webaim.org/articles/motor/assistive#adaptivekeyboard

Well-Moreau, S., Bechard, S., & Karvonen, M. (2016, September 26). *Accessibility manual for Dynamic Learning Maps® alternate assessment, 2016–2017*. The University of Kansas Center for Educational Testing and Evaluation. Retrieved from http://dynamiclearningmaps.org/sites/default/files/documents/Manuals/Accessibility_Manual_2016-17.pdf

Wistrom, E. (2015). Information about adaptive equipment in the classroom. Bright Hub. Retrieved from http://www.brighthubeducation.com/special-ed-physical- disabilities/61925-examples-of-adaptive-equipment-for-students/

Zabala, J. S. (2010). *The SETT framework for assistive technology [DVD].* Roseville, MN: Division of Special Education Policy, Minnesota Department of Education.

Zabala, J. S. (2005-a). SETT scaffold for consideration of AT needs. Retrieved from http://www.joyzabala.com/uploads/Zabala_SETT_Scaffold_Consideration.pdf

Zabala, J. S. (2005-b, April 29). Using the SETT framework to level the learning field for students with disabilities. Retrieved from http://www.ode.state.or.us/initiatives/elearning/nasdse/settintrogeneric2005.pdf

Zabala, J. S., Bowser, G., & Korsten, J. (n.d.). SETT and ReSETT: Concepts for AT implementation. Retrieved from http://www.joyzabala.com/uploads/Zabala_CTG_SETT_and_ReSETT_.pdf (Original work published in Closing the Gap, 23(5), November 2004/January 2005).

Acknowledgements

Original Report Author

Marty Beech, Ph.D.

Collaborative Partners - Local and Area Education Agencies

Gwen Woodward	Iowa Educational Services for the Blind and Visually Impaired
Susan Brennan	Iowa Educational Services for the Blind and Visually Impaired
Harold Colsch	Iowa Educational Services for the Blind and Visually Impaired
Pam Rubel	Iowa Educational Services for the Blind and Visually Impaired
Chad Brown	Iowa Educational Services for the Blind and Visually Impaired
Sara Larkin	Iowa Educational Services for the Blind and Visually Impaired
Chris Short	Iowa Educational Services for the Blind and Visually Impaired
Mari Reynolds	ASK Resource Center
Maria Cashman	Grant Wood Area Education Agency
Julie Freed	Grant Wood Area Education Agency
Annette Hyde	Keystone Area Education Agency
Alan Schwarte	Great Prairie Area Education Agency
June Morgan	Great Prairie Area Education Agency
Diane Campbell	Mississippi Bend Area Education Agency
Cindy Cavanagh	Mississippi Bend Area Education Agency
Kim Hoffman	Mississippi Bend Area Education Agency
Melissa Ristau	Prairie Lakes Area Education Agency
Teresa Teague	Prairie Lakes Area Education Agency
Amy Jo Clayton	Davenport Public Schools
Alyson Finley	Des Moines Public Schools
Lisa Wise	Des Moines Public Schools
Aimee Rhode	Des Moines Public Schools
Mary Heck	Sioux City Community Schools
Sherri McDonald	Sioux City Community Schools
Steven Zediker	Sioux City Community Schools
Lindsay Spears	College Community School District