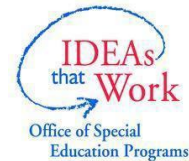


Q&A Guide Recommendations for Improving the Provision and Use of Braille for State-Mandated Assessment Recommendation 1d: Availability of technical materials for both UEB and Nemeth Braille in both math and science

By AEM Center at CAST

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Introduction

The availability of technical materials in both Unified English Braille (UEB) with Nemeth and UEB Math/Science via IEP/504 team recommendations is essential for providing equitable educational opportunities for students who are blind or experience low vision. Relevant braille formats in assessments promote equal access, foster independence, and accurately measure abilities, ensuring the right level of challenge and compliance with legal requirements. Understanding the differences between these formats is vital for educators, assessment vendors, and state agencies to ensure students receive appropriate accommodations.

Using the IEP/504 to drive appropriate braille code accommodations on statewide assessments is the most effective way to certify that students' specific needs are met, providing customized and consistent support that mirrors daily instruction. This approach guarantees valid assessment results, fair comparisons, and adherence to legal mandates. State and district policies must clearly define requirements and compliance measures for vendors to meet all braille users' needs, ensuring correct interpretation, consistency, and accurate measurement of skills. Documenting the specific braille code used in assessments leads to more accurate and meaningful test results, supporting a cohesive and effective educational experience for students.

Question 1: What are the differences between UEB and Nemeth Braille?

UEB is a standardized braille code used for reading and writing English. It was developed to unify various braille codes previously used for different purposes, such as literary, mathematical, and technical content, into one comprehensive system. Many countries and institutions have transitioned from older braille codes to UEB to take advantage of its standardized and comprehensive approach.

Nemeth is a specialized braille code used primarily for writing, reading, mathematics, and science. Many individuals who learned Nemeth braille use it specifically for mathematical and scientific content. Nemeth was originally integrated with non-technical text in the English Braille American Edition (EBAE).

In contrast, Nemeth Braille is specialized for mathematical and scientific notation, providing a comprehensive system for expressing complex equations and scientific content with its own distinct set of symbols. Nemeth Code does not use literary contractions and employs strict formatting rules to ensure precise representation of mathematical information.

While UEB aims for a unified approach across different content types, Nemeth remains dedicated to the detailed and accurate depiction of mathematical and scientific concepts.

For more information, please see:

- [What is Braille by the American Foundation for the Blind](#),
- [How the braille alphabet works by the Perkins School for the Blind](#),
- [Unified English Braille \(UEB\) by the Braille Authority of North America](#).

Question 2: What are the differences between contracted and uncontracted braille?

Uncontracted braille, also known as Grade 1 braille, represents each letter of the alphabet with a single braille cell. This form of braille is straightforward and does not use any contractions.

Contracted braille, also known as Grade 2 braille, uses single braille cells to represent common combinations of letters and entire words. This system makes braille more efficient and compact. There are a total of 187 Grade 2 contractions.

Contracted braille is commonly used in educational materials to help students read more fluently and understand the text more quickly. Individuals new to braille may start with uncontracted braille before transitioning to the contracted form.

For more information, please see [Position Statements and Fact Sheets by the Braille Authority of North America](#).

Question 3: Why is it so important for assessments to be available in the relevant braille formats for students?

Many state and district accessibility and accommodation policies provide recommendations on which braille code to prepare for their students. However, most states allow for both UEB and Nemeth braille; this is sometimes student-dependent (e.g., transfer student, student is more fluent with one code over the other). While this should be indicated on the student's IEP/504 Plan, assessment vendors/publishers should be ready to provide both forms for braille code.

Having assessments available in the relevant braille formats provides critical support for students who use braille in a number of areas:

- **Equal Access:** Ensures students who are blind or visually impaired have the same access to educational evaluations as their sighted peers.
- **Independence:** Students can independently read and respond to assessment materials, fostering a sense of autonomy and confidence.
- **Accurate Measurement of Abilities:** Assessments in the relevant braille format accurately measure a student's knowledge and skills without being hindered by format-related difficulties.
- **Appropriate Level of Challenge:** Using the braille format that aligns with a student's instructional level (contracted or uncontracted) provides a fair evaluation of their understanding and capabilities.
- **Developmentally Appropriate Tools:** Students at different stages of braille literacy require different formats. Assessments must match these learning stages to be effective and meaningful.
- **Cognitive Load:** Providing assessments in the format a student is most comfortable with reduces cognitive load and allows them to focus on demonstrating their knowledge.
- **Legal Requirements:** Many educational systems have legal mandates to provide accessible materials to students with disabilities, including braille.
- **Standardized Testing Protocols:** Adhering to standardized testing protocols requires educators to provide materials in formats that all students, including those who use braille, can access and use effectively.

Question 4: What is the role of the IEP in statewide assessment systems?

Federal legislation mandates that all students with disabilities participate in state assessments. Participation is crucial for accountability, academic growth, and ensuring equal opportunity and access to education. The manner in which students participate in state assessments is determined by their Individualized Education Program (IEP). Several sections within IDEA 2004 guide this process:

- **Consideration of Special Factors [Sec. 614 (d) (3) (B)]:** This section addresses the need for communication and assistive technology supports.
- **Supplementary Aids and Services [Sec. 602 (29) and Sec. 614 (d) (1) (A) (i)]:** This part of the IEP includes “aids, services, and other supports provided in regular education classes or other education-related settings to enable children with disabilities to be educated with nondisabled children to the maximum extent appropriate.”
- **Participation in Assessments [Sec. 612 (a) (17)]:** This section documents the accommodations required to facilitate the participation of students with disabilities in general state and district-wide assessments.

Question 5: Why is using the IEP to drive the appropriate braille accommodations on statewide assessment a critical success factor?

Using the Individualized Education Plan (IEP) to inform which types of braille should be used on statewide assessments helps in a number of ways:

- **Customized Accommodations:** By using the IEP to determine braille accommodations, educators can ensure the specific format and type of braille align with the student's current level of proficiency and learning requirements.
- **Consistent Support:** Ensuring the accommodations used during daily instruction are mirrored in statewide assessments helps maintain consistency, reducing anxiety and providing a familiar context for the student.
- **Valid Assessment Results:** Tailoring braille accommodations based on the IEP ensures assessments measure the student's true academic abilities rather than their ability to adapt to an unfamiliar or inappropriate braille format.
- **Fair Comparisons:** When statewide assessments account for individual needs as specified in the IEP, it allows for fair comparisons across different student populations, ensuring all students are assessed on an equal footing.
- **Adherence to Legal Mandates:** Federal and state laws, such as the Individuals with Disabilities Education Act (IDEA), require students with disabilities receive appropriate accommodations. Using the IEP to determine these accommodations ensures compliance with these legal requirements.
- **Goal Setting and Progress Monitoring:** Using the IEP to drive accommodations ensures assessments are aligned with the student's educational goals and objectives.
- **Consistency Across Settings:** When accommodations are driven by the IEP, there is consistency in the support provided across different settings, including classroom instruction and statewide assessments, leading to a more cohesive educational experience for the student.

Question 6: How can IEPs help ensure the right braille accommodations—UEB, Nemeth, contracted or uncontracted braille—are in place for assessments?

All assessment vendors and publishers should be prepared to provide any braille format, or combination of formats, as required by the student's IEP. This includes options for paper/pencil or digital braille, whether contracted or uncontracted, in UEB or Nemeth formats. While state assessment accommodation policies often recommend specific options, these recommendations vary by state (Quanbeck, Holden, & Lazarus,

2023). Ultimately, the individual student's needs, as outlined in their IEP, take precedence.

Multiple laws and regulations mandate providing accessible assessments for students with disabilities. The 2015 Every Student Succeeds Act (ESSA) emphasizes the need for assessments to be developed using Universal Design for Learning (UDL), ensuring students can demonstrate their knowledge and skills in an engaging way. ESSA also requires assessments to reduce barriers and provide accommodations and supports while maintaining high expectations for all students.

The IDEA 2004, in section 614(d)(3)(B)(iii), specifically addresses the responsibility of public agencies to provide braille instruction for blind and visually impaired students. It mandates the IEP team must include braille instruction unless they determine, after evaluation, that braille is not appropriate for the student.

One suggestion to support state department agencies and assessment publishers in creating accessibility and accommodation policies is to utilize and mirror the [Council of Chief State School Officers \(CCSSO\) Accessibility Manual](#). This would support consistency in vocabulary used to define various accommodations and promote uniformity between and within states.

Question 7: How can state/district policy be used to help drive the correct requirements and compliance measures for assessment vendors to meet the needs of all braille users on statewide assessments?

It is important for assessment vendors to understand the nuances of Unified English Braille (UEB) and Nemeth Code so they can develop and administer assessments that meet the diverse needs of students, ensuring high-quality and reliable testing materials.

Braille is a code, and each variation (UEB and Nemeth) has unique characteristics. Just as English and Spanish use similar alphabets but differ in orthography (rules of spelling) and semantics, different braille codes have distinct structures and rules. UEB, Nemeth, and EBAE all utilize braille cells and raised dots, but the order and context of these dots vary significantly across codes.

Understanding these nuances is crucial because the meaning of a braille symbol depends on the specific code, context, browser, and assistive device being used. Therefore, it is essential to document the type of braille code (e.g., UEB or Nemeth)

used in assessments. Accurately recording this information ensures students have a valid assessment experience, aligning with their learning and reading needs.

It is critical that any state/local policies around the use of braille are clearly articulated during procurement, as well as include appropriate quality control and expert input throughout the process. The benefits of doing so include:

- **Correct Interpretation:** UEB and Nemeth serve different purposes and have distinct symbols and rules. Ensuring the correct code is used guarantees mathematical and literary content is accurately represented, avoiding confusion.
- **Consistency in Testing:** Using the appropriate braille code maintains consistency in how information is presented, allowing students to apply the knowledge and skills they have learned without adapting to an incorrect format during assessments.
- **Appropriate Difficulty Level:** The use of the correct braille code ensures the assessment is at an appropriate difficulty level. Nemeth Code, designed for math and science, provides clarity and precision necessary for those subjects, while UEB is used for general content.
- **Fair Measurement of Skills:** Assessing students in the code they have been taught ensures their performance reflects their true understanding and abilities rather than their ability to adapt to a different or unfamiliar braille system.
- **Familiarity with Format:** Students perform better when they are familiar with the format and symbols used in assessments. Using the correct braille code that students are accustomed to reduces anxiety and allows them to demonstrate their true capabilities. When the correct braille code is used, students can focus on the content of the assessment rather than deciphering the format, leading to more accurate and meaningful test results.

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