English to ASL Translation Standards

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Overview

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Overview

This document articulates the guidelines that were used for the development of accessibility through ASL for technology-enhanced K-12 assessment items within a specific testing product and platform. The purpose of this document is to describe the means by which access to English-based content was facilitated through the use of ASL in a translated format by way of specific standards and processes. The following discussions delineate these measures and their rationale.

Target Audience – This project has been developed for deaf and hard-of-hearing students in K-12 educational settings including, but not limited to, deaf schools, deaf and hard-of-hearing classrooms, and mainstreamed settings.
   o   Source Language Text – American English
   o   Target Language Text – American Sign Language (ASL)

Translation Team Members and Process – Although the specific design of this project contains inherent demands that differ from the process described in the GAAP project, the report titled *Research and Development for Audio and American Sign Language Guidelines for Creating Accessible Computer-Based Assessments* served as a guiding document to inform the process for this work. The standards for translating math content and word problems established for the translation team are based upon the work and training materials developed by Molly O'Hara: *Interpreting Mathematics* and *Interpreting Word Problems*.

All translation team members are bilingually fluent and have expertise within their content area and/or translation work. Translation team members worked in small groups to collaboratively prepare, review, and perform quality checks for specific content. In addition to multiple intra-team reviews during the translation and filming process, external reviewers, which were not members of the translation team, provided an added layer of review and validation to ensure the quality and integrity of the work product. Any submission that did not fully satisfy all standards was reworked from the point of divergence to ensure consistency and effectiveness.

As part of the translation team, language models are native signers fluent in ASL and diverse with respect to gender, age, and variety of style. Only deaf native signers were used as on-camera language models. Skin-contrastive, solid-colored clothing common to the educational context and familiar to students in a K-12 setting was used.

It is noted that many students rely upon the use of interpreters for communication access as a significant part of their educational experience. However, in keeping with the intent of this project to reflect a direct translation from English to ASL, factors common to the interpreted dynamic did not influence this work.

Parameters – Grade-level signing speed, spatial phrasing, natural rhythm, and appropriate use of eye gaze were consistently adjusted throughout to meet the specific context of each item within the global standard.

Question Type Variability – As compared to listening and MDPT question types, math content was translated in keeping with a more formulaic standard. The work of translating math questions and word problems is based upon the intellectual property and curriculum developed by Molly O'Hara. This internal protocol was set as the framework for the math translations in this project. O'Hara's documents were utilized by all team members to maintain consistent application across the wide variety of math content and question types.

Listening and MDPT question types follow the narrative style common to English to ASL translation work. As mentioned, contextual adjustments were made to address the nature of asynchronous testing that is influenced by features more commonly found within a frozen text format.

Linguistic Burden Equivalence – Every effort has been made to ensure that there is neither lingual or spatial strain nor advantage given in the translations.

Message Equivalence – The meaning and intent of the source language are conveyed fully through the target language. The transition from the source language to the target language is not a transliteration. For example, some ASL idioms were used to equal the original meaning. Although not overtly a part of signed content, the psychometric rationale for each question and answer was used as a guide.

<u>Linguistic Features Impacted by Testing</u> – Due to the nature of the psychometric testing environments, there is an inherent demand for a more strict and direct correlation with the form as established by the source. Therefore, within this context, the use of scaffolding and expansion in ASL was intentionally limited. Furthermore, the use of direct address was utilized more fully than would be typical in natural discourse. Although these adjustments were necessary within this context, the balance required to maintain message and linguistic equivalence was maintained through the management of other visually rich and recognized ASL linguistic features such as the use of structured space, classifiers, and non-manual markers.

In some particular instances, the nature of viewing a three-dimensional language in a two-dimensional mode has the potential to impact the viewer's ability to access information. In such instances, equivalent but more screen-appropriate selections were made within the realm of lexical selection, palm orientation, movement, or directionality.

<u>Address</u> – Direct address by the signing models to the camera was more extensive than would be found in typical signed discourse. This intentional adjustment was made in keeping with filming standards for technology-based testing environments as a whole. The angle of the text given is always from the signer's perspective.

<u>Testing Platform</u> – Neutrality with regard to platform is an established standard for this testing environment. Student interface methods may include the use of various computer types, tablets, and other specialized adaptive equipment. Translation is based upon English content only and does not correlate with the testing environment or screen view experienced by the student. In particular, the inherently specific act of listing within ASL for answer choices and test-taking directions has been modified to present a more abstract rendition.

Math

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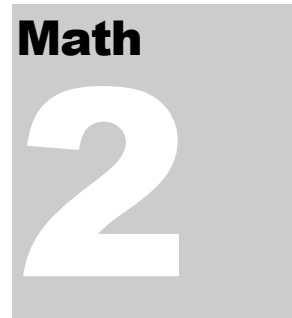
Math Subject Matter

The ASL translation for math content has been designed to create a parallel and equivalent linguistic experience for deaf and hard-of-hearing students when compared to that of their academic counterparts who are using the English-based materials. The translation process supports an experience that is of equivalent linguistic burden with no inherent benefit or penalties for students who use ASL. Although a translated experience by nature is not the same as a first-language interaction, the message was rendered in such a way as to support the rationale and purpose within the given passages. The translation of math items was developed from an established, formulaic standard resulting in the performance of measured tasks with equal ease or difficulty as their peers.

In regards to math terminology, there is great diversity in the use and familiarity of more technically specific terms amongst students, educators, and interpreters. Therefore, terms that have the potential for less widespread familiarity were supplemented with a lexicalized word through the structure of pairing. For example, the ASL word for the English phrase "mathematical symbol" may or may not be known. For such situations as this, the lexicalized equivalence follows the ASL translation standard.

Regarding numbers in a mathematical context, strict protocol was followed to preserve the integrity of the inherent properties of any given number. For example, cardinal numbers were not used to translate nominal numbers. As an additional example, the verticality of an ASL number was consistently taken into account when translating the varying types of fractions.

Especially in word problems, the information cannot automatically be arranged in a sequence of what happens first, second, third, etc. The translation process often structured sentences based on the spatial properties of how a word is pronounced morphologically.

In the case of algebraic notation being presented outside of the math question, the notation was not translated. Where possible, expressions such as (5x)(3x + 6) were handled as a figure to be studied alongside the translated instructions. However, when there was a notation embedded into the math question, it was translated and typically placed in front of the math question.

In keeping with the equivalence of linguistic burden, none of the graphs, functions, or proofs were translated. However, where applicable, labels of a figure given, such as a line plot, have been incorporated into the question text. Of parallel intent, when a question prompt such as "What is 9 ÷ 3?" offers the straightforward task of performing a given math function, directions are given in ASL to view the question and then to respond by selecting the correct answer.

Math Content Specifics

The following examples are a list of frequently occurring guidelines that were used throughout the translation process.

1) Pronunciation rules for lexicalization always apply; words are never fingerspelled.

2) Variables do not get any movement; the only exception is when following 'abbreviated'.

3) For those translations that are inherently more pictorial than others, the students are not being given an advantage because they still need to switch the signer's view to their own view. This situation requires its own linguistic process.

4) Where none of the visual properties of mathematically-oriented ASL words compromise the intent of the question, the ASL translation is given.

5) Any rounding with a tenth or a hundredth place, for example, is translated in the lexicalized form because the signed form has only to do with positioned place value.

6) Even though the English text uses the abbreviated form 'in' for "inches" when giving each dimension, the lexicalized #INCH is used instead, in the ASL translation. The abbreviated English form appears only once, when appearing for the first time, in the ASL translation. This also extends to any other unit of measurement, e.g., "meters" or "feet", in any other future math item. Lastly, the abbreviated form 'in', 'ft', or 'm', as

examples, do not naturally occur in ASL and are used only in reference to written English.

7) When students using ASL are expected to recognize the names of shapes in English, the answer choices are not translated.

8) There is no standardized way to express "order of operations". However, in every case – save the option to lexicalize – the ASL phrase relies heavily on context and is always in verb form. Two translation options deliberately being avoided are the ones that include CALCULATE and FIGURE, respectively, due to the danger of leading the student to the operation of multiplication. (Though each is pronounced differently, the two words share the same root with MULTIPLY.)

9) Due to the vertical orientation of the rectangle shown in the testing material, 'width' was translated as 'height' in ASL. (This applies to all other similar rectangles.)

10) The seemingly visual propert(ies) of certain math words are not to be taken literally. For example, the vertical orientation of SUM is abstract in meaning and does not depend on any visual layout.

11) While the ASL phrase for 'hundredths place' (for example) is seemingly revealing, the student still needs to understand the ASL word for 'place value', in addition to being able to read the relationship between the decimal place and the specified place value. Furthermore, it is easy to confuse 'hundreds' and 'hundredths' if the student does not understand the placement of the two hands.

12) The English meaning of "coordinates" is inherently a combination of two singular coordinates: 'x' and 'y'. As it is in English, the ASL translation does not explicitly say 'x' and 'y', but "coordinates" literally translates into ASL as "a set of coordinates" which renders the form singular (and not plural).

Listening

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Listening Subject Matter

The ASL translations of the listening and MDPT content have been designed to create a parallel and equivalent linguistic experience when compared to that of the English-based materials. The translation process supports an experience that is of equivalent linguistic burden with no inherent benefit or penalties for students who use ASL. Although a translated experience by nature is not the same as a first-language interaction, the message has been rendered in such a way as to support the rationale and purpose within the given passages. The structure and linguistic presentation of the translated passages and their correlating questions were developed upon the context of the rationale and psychometric purpose for each question and its type, whereby students can perform the measured task with equal ease or difficulty as their peers.

Writers' "Voice" – Translation choices were made to reflect the writers' "voice" so as to support an equivalent experience between English and ASL. Typically, this was through the use of direct address and a neutral tone, particularly with regard to answer choices. In some instances, the source material uses direct quotes, dialogues between two speakers, and has a variety of affect. In such cases, the target language accommodated this diversity of expression found in the source.

Lexical Consistency – It is noted that, as with any translation project, there is a myriad of effective lexical and structural choices that could render a message equivalent to the source. Therefore, great care was taken to ensure message equivalence through the translation process and quality assurance protocol as previously described in this document. Lexical choices were not prescribed globally, but consistency was maintained within each unit of narrative content and questions so as to render an experience that is parallel in both languages.

Diversity – In order to reflect an authentic linguistic experience, the native signing models reflect the natural diversity of ASL in style and in expression. Translations focused on maintaining message and linguistic equivalence while allowing for this necessary and natural diversity seen among those who use ASL. It is noted that in North America there are a variety of regional differences. However, for purposes of standardizing the testing material, care was taken to avoid the use of local sign choices.

References

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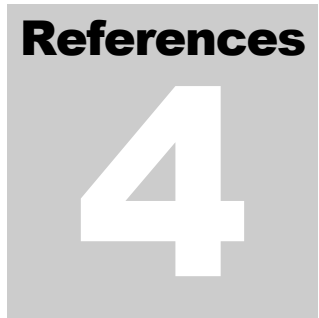
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