



# OVERVIEW OF AND INTERPRETATION GUIDELINES FOR THE SCHOOL VERSION OF THE ASSESSMENT OF MOTOR AND PROCESS SKILLS (SCHOOL AMPS)

## Description of the School AMPS

The School AMPS is a standardized, observation-based evaluation of a student's quality of schoolwork task performance. When a student is evaluated using the School AMPS, the occupational therapist observes the student in his or her natural classroom setting while he or she performs at least two schoolwork tasks assigned by the teacher (e.g., cutting, coloring, writing). The schoolwork tasks observed are ones that the student, teacher, parents and/or others in the client constellation reported as presenting a challenge during the student's typical school day.

An important feature of the School AMPS is that it is an evaluation of occupational skill; not underlying body functions, person factors, or environmental factors. More specifically, the School AMPS is comprised of two scales, a school motor scale and a school process scale. The school motor scale includes 16 occupational performance motor skills (e.g., *Grips, Lifts, Calibrates, Reaches*) and the school process scale includes 20 occupational performance process skills (e.g., *Searches/Locates, Gathers, Organizes, Initiates*). These occupational performance skills are the School AMPS items and they represent small observable units of schoolwork task performance.

Scoring the School AMPS is criterion-referenced based on a criterion of competence. That is, the occupational therapist rates the quality of each of the 36 occupational performance skills based on how much clumsiness or physical effort, time and space inefficiency (i.e., time and space organization), safety risk, and/or need for assistance the student demonstrated when performing schoolwork tasks. To this end, each School AMPS item is scored = 4 (competent, no problem), 3 (questionable, possible disruption), 2 (ineffective, clear disruption), or 1 (severe; marked physical effort or fatigue, marked inefficiency, markedly unsafe, need for verbal or physical assistance).

The occupational therapist enters each School AMPS item score into the OT Assessment Package (OTAP) and uses the OTAP software to calculate linearized school motor and school process measures that are reported in logits (log-odds probability units). When the School AMPS measures are placed along the School AMPS scales, their locations indicate the level of the student's observed quality of schoolwork task performance. The higher the student's School AMPS measures along the respective scale, the higher was his or her observed occupational skill when performing schoolwork tasks. Both School AMPS scales are included in the student's "Results and Interpretation of a School AMPS Observation" report (*School AMPS Results Report*). As discussed below, the School AMPS measures can be interpreted from a criterion-referenced and a norm-referenced perspective.

## Criterion-referenced Interpretations

**Commonly observed quality of schoolwork task performance:** Two different criterion-referenced interpretations of a student's School AMPS measures are possible. The first is based on comparing (a) the location of the student's School AMPS measures to (b) the quality of schoolwork task performance commonly observed among students who have School AMPS measures in the same range along the School AMPS scales. For example, a school motor measure of 1.0 logit is located in the range where it is most common to observe "mild to moderate clumsiness and/or increased physical effort or fatigue."

**Cutoffs for competent quality of schoolwork task performance:** The second criterion-referenced interpretation is based on comparing the student's School AMPS measures to the criterion-referenced cutoff measures of 2.0 logits on the School AMPS motor scale and 1.0 logit on the School AMPS process scale. These cutoff measures indicate the lower limit for competent schoolwork task performance. More specifically:

- A school motor measure above the cutoff indicates that the student competently moved him- or herself and task objects during the performance of schoolwork tasks.

- A school process measure above the cutoff indicates that the student competently (a) selected, interacted with, and used task tools and materials; (b) carried out individual task actions and steps; and (c) modified task actions to prevent problems.
- School motor or school process measures below the cutoffs indicate that the student demonstrated at least minimally diminished competence (lowered quality of observed occupational skill) when performing schoolwork tasks.

**Special considerations when testing young students:** It is important to note that quality of schoolwork task performance increases with age. Therefore, a young student may have School AMPS measures below the cutoffs merely because he or she has not yet developed the occupational skill needed to perform schoolwork tasks efficiently and without clumsiness or increase in physical effort. To determine if a student's quality of schoolwork task performance is at or below a level expected for someone of the same age, it is necessary to also apply a norm-referenced interpretation of his or her School AMPS measures.

### Norm-referenced Interpretation

When a norm-referenced interpretation is made, the occupational therapist compares the student's School AMPS measures to the normative mean (average) and variation in quality of schoolwork task performance among age-matched, typically-developing students. Approximately 95% of typically-developing students of the same age as the student who was tested have School AMPS measures within  $\pm 2$  standard deviations (SD) of the normative mean. This range ( $\pm 2$  SD) representing the expected variation in quality of schoolwork task performance is depicted by a vertical band to the left of the respective scale on the student's *School AMPS Results Report*. The normative mean is located in the middle of each vertical band and is represented by a dark dot. When a student's school motor or school process measure is within the range illustrated by the vertical band, the student's observed quality of schoolwork task performance was within  $\pm 2$  SD of the mean. The respective percentile ranks (percentage of typically-developing, same-age students with lower School AMPS measures) and z scores also are reported in a table that is included in the student's *School AMPS Results Report*. A student's z score represents how many SD above or below the normative mean is his or her School AMPS measure.

**Note.** School AMPS reports display the mean  $\pm 2$  SD because it is the most commonly used criterion to determine a student's need for services; other criteria (e.g.,  $z \leq -1.5$  or  $z \leq -1.0$ ) are sometimes used.

### Evaluation of Change

When the School AMPS is used to evaluate change in a student's quality of schoolwork task performance, the student performs two schoolwork tasks for each School AMPS observation, and the Time 1 and Time 2 school motor and school process measures are compared. The Time 1 and Time 2 School AMPS measures are reported in a table in the *School AMPS Progress Report* and are shown graphically along the respective School AMPS scales. There are two ways to evaluate if the student's quality of schoolwork task performance has improved, stayed the same, or decreased. The first is based on whether the change is great enough to be observable. The second pertains to whether or not the change is likely to be statistically significant.

**Observable change:** Two school motor or two school process measures that differ by at least 0.3 logit have changed in a practical and meaningful way. That is, a change of at least 0.3 logit indicates that there has been an observable change in the student's quality of schoolwork task performance; a higher school motor or school process measure for the second School AMPS observation indicates that there has been an observable improvement in the student's quality of schoolwork task performance. If two school motor or two school process measures do not differ by 0.3 logit, they can be considered to be essentially the same; there has been no observable change between Time 1 and Time 2.

**Significant change:** The standard error of measurement (SE) values for each of the student's School AMPS measures can be used to determine whether the change between Time 1 and Time 2 is likely to be statistically significant ( $p \leq .15$ ). That is, if the change between the Time 1 and the Time 2 School AMPS measures is at least as large as the sum of the SEs for each of those measures, then there has likely been a statistically meaningful change in the student's quality of schoolwork task performance. For example, to determine if there was likely a significant difference between two school motor measures for Time 1 = 0.5 and Time 2 = 1.2, the occupational

therapist first calculates the difference:  $1.2 - 0.5 = 0.7$ . Next, the occupational therapist uses the Mean Standard Errors (SE) for School AMPS Measures at Different Locations along the School AMPS Scales table (available from: [www.innovativeOTsolutions.com/documents/Mean-SEs-for-School-AMPS-Measures.pdf](http://www.innovativeOTsolutions.com/documents/Mean-SEs-for-School-AMPS-Measures.pdf)) to find the SE for each measure. The SE for a school motor measure of 0.5 is 0.30 and the SE for a school motor measure of 1.2 is 0.29; their sum is 0.59 (when rounded, 0.6). Since the change between Time 1 and Time 2 (0.7) is more than the sum of their respective SEs (0.6), the occupational therapist concludes that the two school motor measures likely differ significantly ( $p \leq .15$ ).