

## Writing Fluency Growth of Kindergarten Students Who Participated in the NeuroNet Classroom Enrichment Program Compared to Typical Kindergarten Student Growth.

### Summary of Findings

The group participating in NeuroNet, showed significantly more growth in writing fluency than is typical for Kindergarten students, especially in the area of letter fluency. 21% more NeuroNet students were able to complete the 1 minute number writing exercise and 25% more NeuroNet students were able to complete the 1 minute alphabet writing exercise than the group of typical Kindergarten students.

Source: Angelika Brocklehurst OTR/L, School-Based Therapist

### Writing Fluency Assessment

*Writing Fluency is defined as the number of letters or numbers written per minute.*

Two timed writing samples were produced.

1. The first sample asked students to write numbers in sequence from memory within 1 minute (maximum = 26 numbers). Two scores were obtained:
  - a. One score counted the raw number written in one minute irrespective of errors. A percentage of the total is also indicated.
  - b. The second score excluded the errors (reversals, sequencing errors or wrong numbers). A percentage of the total is also indicated.
2. The second sample asked students to write lowercase letters in sequence from memory within 1 minute (maximum = 26 letters). Two scores were obtained:
  - a. The first counted the raw number of letters written in one minute irrespective of errors. A percentage of the total is also indicated.
  - b. The second score excluded the errors (upper case letters, reversals, sequencing errors and wrong letters). A percentage of the total is also indicated.

### Writing Fluency Growth for Typical Kindergarten Group:

	Write Numbers	Numbers Correct	Write Alphabet	Alphabet Correct
Pre-test Average 1/4/2012	15.39 59.2%	12.91 49.7%	14.13 54.3%	8.51 32.7%
<b>Typical K Average 5/11/2012</b>	<b>20.21 77.7%</b>	<b>15.92 61.2%</b>	<b>15.13 58.2%</b>	<b>11.89 45.7%</b>
% scoring 100%	13%	8%	11%	0%
Average Change	+4.82	+3.01	+1.0	3.38
Average % Change	+18.5%	+11.6%	+3.9%	+13%

### Writing Fluency Growth for NeuroNet Kindergarten Group:

	Write Numbers	Numbers Correct	Write Alphabet	Alphabet Correct
Pre-test Average ¼/2012	15.39 59.2%	12.91 49.7%	14.13 54.3%	8.51 32.7%
<b>NeuroNet Group Average 5/11/2012</b>	<b>22.22 85.5%</b>	<b>19.88 76.5%</b>	<b>21.21 81.6%</b>	<b>16.59 63.8%</b>
% scoring 100%	34%	11%	36%	4%
Average Change	+6.83	+6.97	+7.08	+8.08
Average % Change	+26.3%	+26.8%	+27.3%	+31.1%

### Growth of NeuroNet Group Compared to Typical Kindergarten Group

	<b>Write Numbers</b>	<b>Numbers Correct</b>	<b>Write Alphabet</b>	<b>Alphabet Correct</b>
Typical K Growth	+4.82	+3.01	+1.0	+3.38
NeuroNetGroup Growth	+6.83	+6.97	+7.08	+8.08
<b>Difference</b>	<b>+2.01</b>	<b>+3.96</b>	<b>+6.08</b>	<b>+4.70</b>
% Difference	7.8%	15.2%	23.4%	18.1%