

Report on Analysis of Outcomes of Implementation of an
RTI model that included DIBELS, Data Analysis, LETRS
training, coaching and mentoring:
Pleasant Valley School District for 2004 to 2007

Prepared for The Institute For Literacy and Learning

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Executive Summary

During the 2006 – 2007 school year, the kindergarten teachers of the Pleasant Valley School District received training in an RTI model that included mCLASS:DIBELS, Informal diagnostics, instructional modeling, coaching competency model, Data Analysis, and LETRS professional development through Step By Step Learning, LLC. Over the past three years, Dynamic Indicators of Basic Early Literacy Skills (DIBELS) data had been collected at fall, winter, and spring across all kindergarten students. This report provides an analysis of the outcomes across these years, using the 2004-2005 and 2005-2006 years as pre-intervention periods. Although not a true control comparison, the demographic stability of the district across these years would suggest no expected differences in kindergarten school entry populations allowing this comparison to provide an effective method of discerning the impact of the training provided to teachers during the 2006-2007 school years.

Overall, the data analysis showed that across the three years of DIBELS data collection, the largest gains and highest levels of student performance were statistically greatest during the 2006-2007 intervention years. Comparisons across measures showed this to be evident for the ISF, PSF, and NWF measures. It does appear that performance during the 2005-2006 pre-intervention years was somewhat lower than the 2004-2005 pre-intervention years. Effect size calculations found moderate effects for PSF and NWF comparing the intervention year to the pre-intervention 2004-2005 year, with large effects evident against the 2005-2006 pre-intervention years.

In general, the analyses reported suggest that the training process offered during the 2006-2007 school years significantly and substantially improved student outcomes above the instructional process evident in the previous school years.

Background

Data had been collected on DIBELS measures for kindergarten for 2004 -2005, 2005-2006, and 2006-2007. During 2006 -2007, LETRS training provided by Step By Step Learning, LLC., was provided to the district. The analysis provided used the 2006-2007 year to represent the intervention year, with the two previous years data as no-intervention groups.

Separate analyses were conducted for each of the 4 DIBELS measures administered through the kindergarten year (LNF- Letter Naming Fluency; ISF – Initial Sound Fluency; PSF – Phonemic Sound Fluency; NWF- Nonsense Word Fluency). Among these measures, PSF is considered the “index” skill for kindergarten, and represents the measure on which the strongest prediction for subsequent development in literacy in first grade is based.

Analyses

Statistical analyses (ANOVA- Analysis of Variance) were conducted examining differences between groups on each of the measures at each point in time. In addition, growth rates for each measure were compared against the expected growth rates based on DIBELS reported benchmarks.

Means for each measure across years are reported in Table 1, growth rates across measures and years are reported in Table 2 and Figure 1.

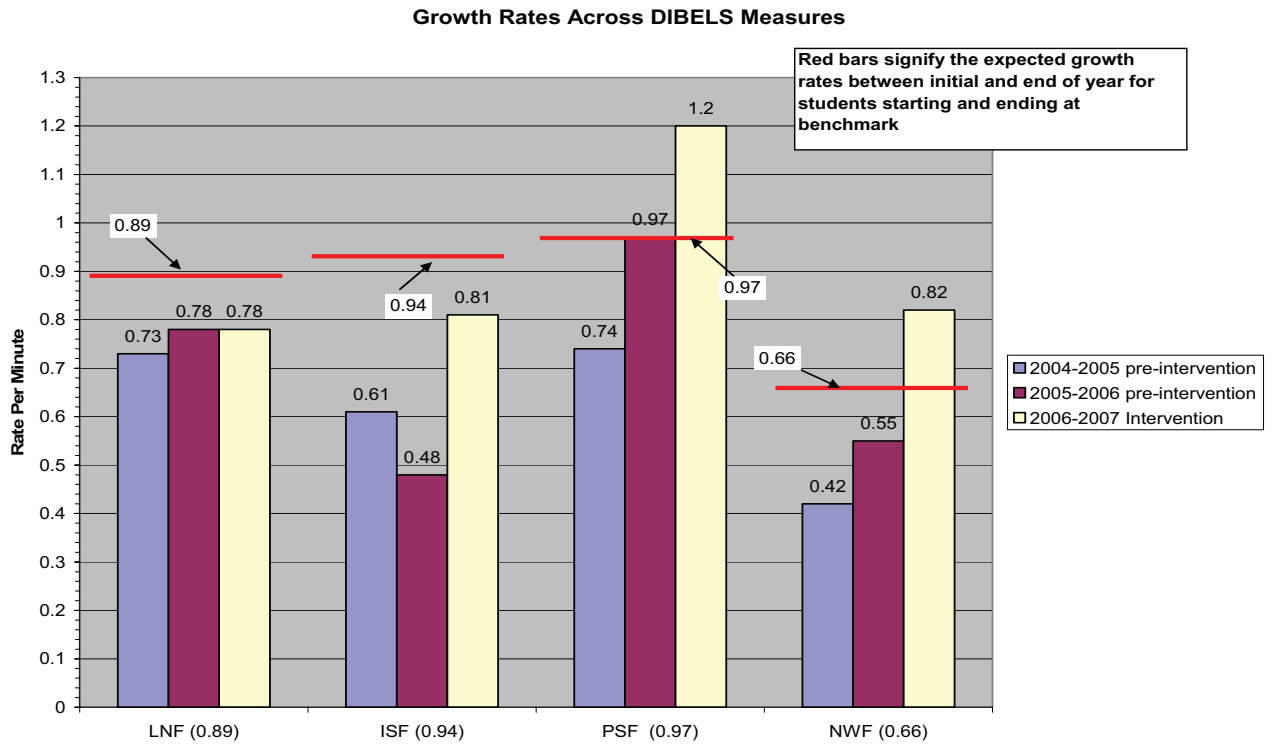
Table 1. Mean levels across measures and time.

LNF	Beg	Mid	End
2004-2005 pre-intervention (n=388)	15.74	33.35	41.91
2005-2006 pre-intervention (n=353)	14.16	29.47	42.22
2006-2007 intervention (n=383)	16.21	34.3	44.27
ISF	Beg	Mid	End
2004-2005 pre-intervention (n=394)	10.96	22.02	
2005-2006 pre-intervention (n=360)	9.5	18.16	
2006-2007 intervention (n=362)	10.19	24.77	
PSF	Beg	Mid	End
2004-2005 pre-intervention (n=408)		17.3	30.7
2005-2006 pre-intervention (n=368)		13.6	26.34
2006-2007 intervention (n=393)		16.88	38.41
NWF	Beg	Mid	End
2004-2005 pre-intervention (n=408)		18.18	26.28
2005-2006 pre-intervention (n=368)		13.97	23.88
2006-2007 intervention (n=393)		20.46	34.04

Table 2. Growth rates across years and measures

	LNF (0.89)	ISF (0.94)	PSF (0.97)	NWF (0.66)
2004-2005 pre-intervention	0.73	0.61	0.74	0.42
2005-2006 pre-intervention	0.78	0.48	0.97	0.55
2006-2007 Intervention	0.78	0.81	1.2	0.82

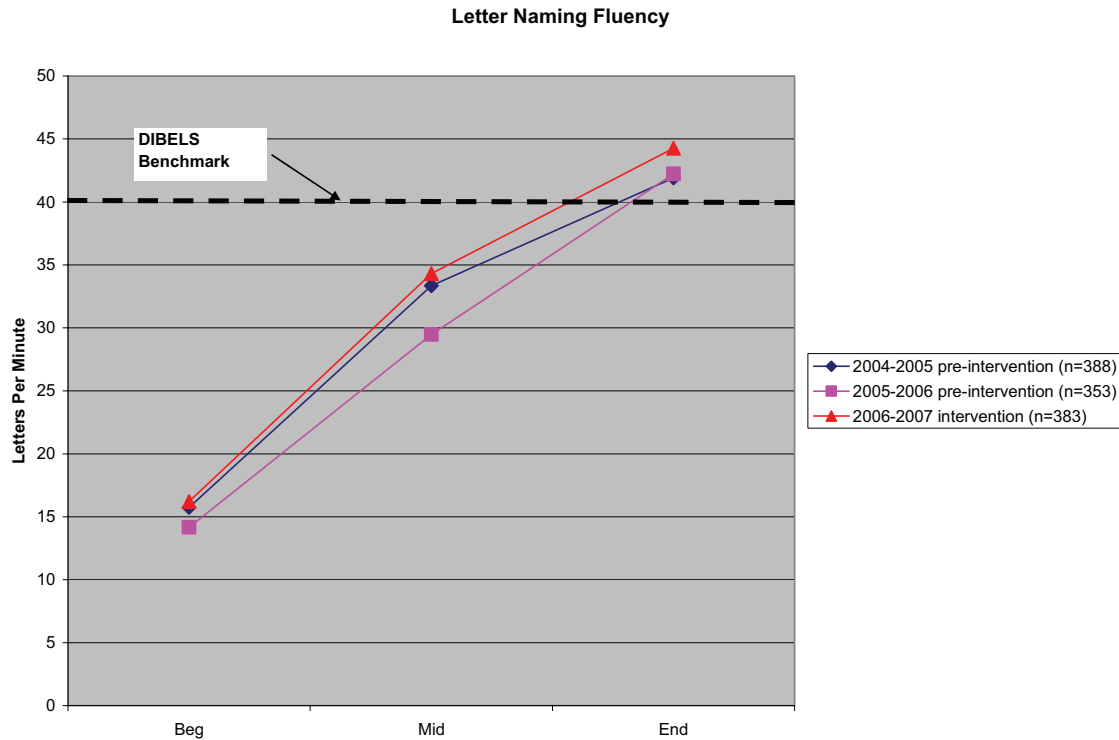
Figure 1. Growth rates across years and measures



Letter Naming Fluency

No significant differences were found for LNF at any point in time across the three years of data. Figure 2 illustrates these analyses.

Figure 2. Letter Naming Fluency Across Years

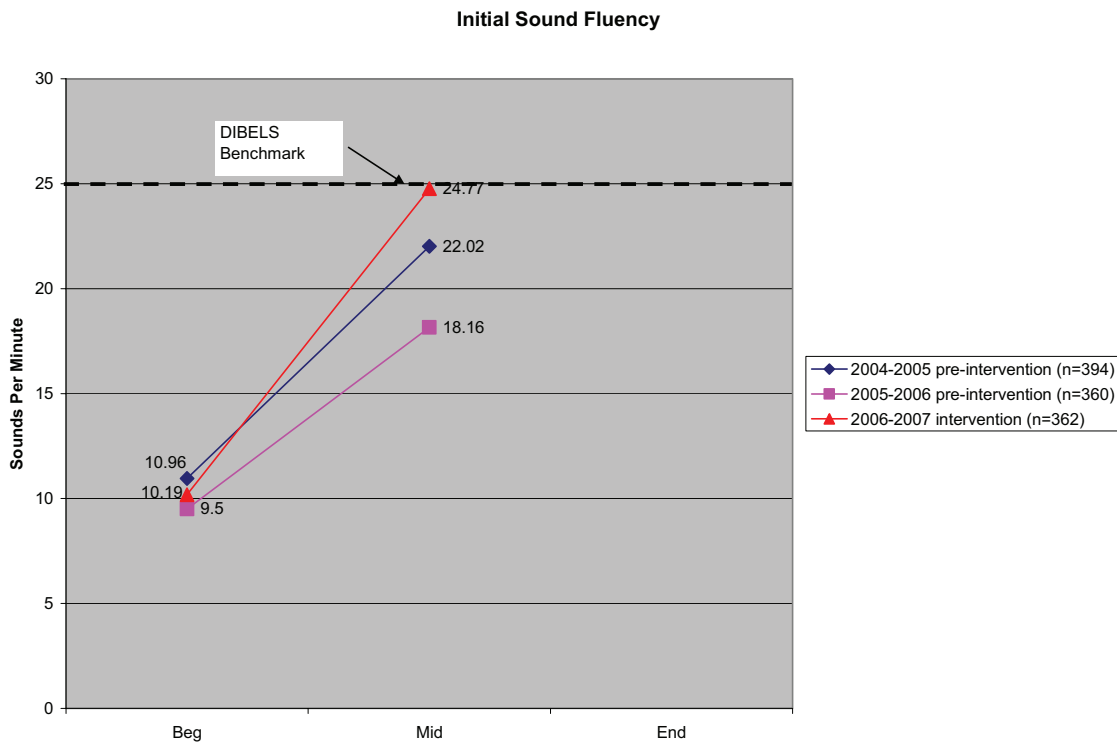


Growth rates for LNF are shown in Table 2 and Figure 2. The values listed under each measure are the growth rates expected of students beginning and ending at benchmark. For LNF, growth rates across years were somewhat less than expected for typical performing students. However, mean performance across the three groups all exceeded the spring benchmark of 40 letters per minute.

Initial Sound Fluency

An ANOVA conducted on the ISF measure shows that at mid-year, the performance of the 2006-2007 group (intervention group) was significantly better than the 2005-2006 pre-intervention group ($p < .001$). The intervention group was not significantly different from the 2004-2005 pre-intervention groups. No significant differences between these groups were found at the beginning of the year. Figure 3 illustrates these analyses.

Figure 3. Initial Sound Fluency Across Years



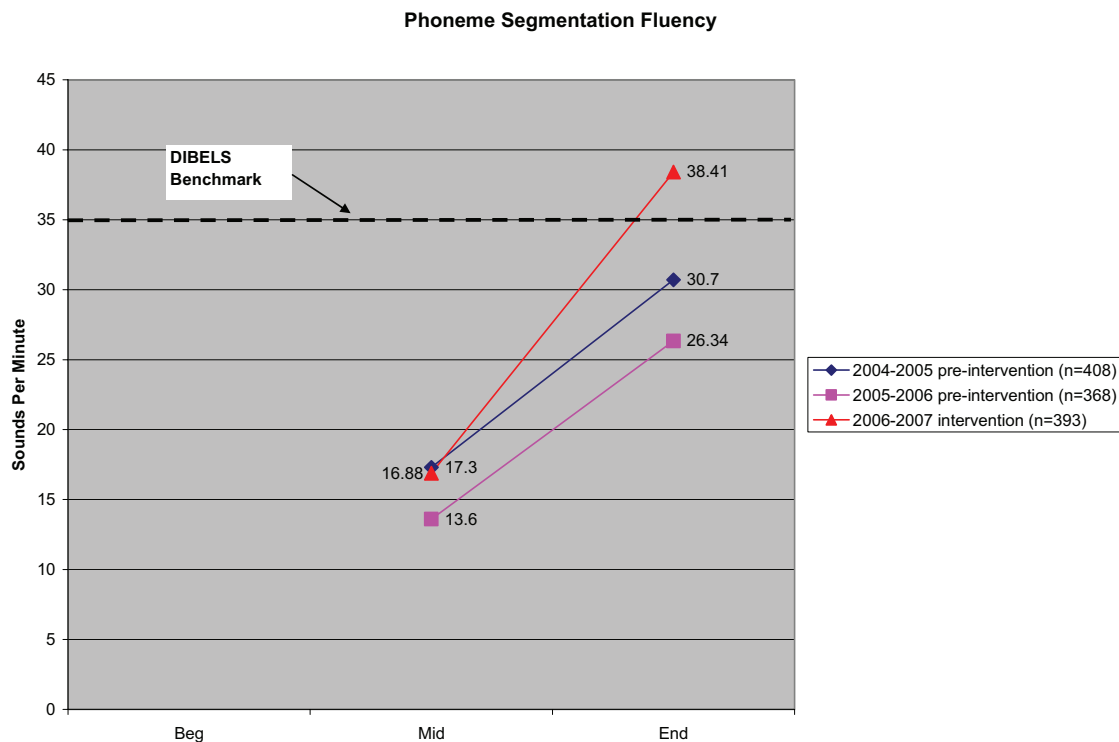
Growth rates for ISF are reflected in Table 2 and Figure 2. As evident in the figure, students in the 2006-2007 intervention years grew at rates much larger than either of the previous years. In addition, only students in the intervention year reached the DIBELS benchmark at the middle of the year.

Phoneme Segmentation Fluency

Across DIBELS kindergarten measures, PSF is considered the index skill on which student predicted outcomes for performance in subsequent years is based. An ANOVA conducted on the PSF measure shows that end-of-year performance of the 2006-2007 groups (intervention group) was significantly better than the 2005-2006 ($p < .001$) and 2004-2005 pre-intervention groups ($p < .001$). The 2004-2005 pre-intervention intervention groups were significantly better from the 2005-2006 groups ($p < .001$). No significant difference between these groups was found at the mid-year assessment. Figure 4 illustrates these analyses.

Effect size differences comparing intervention years (2006-2007) to pre-intervention years found moderate effects of 0.44 against the 2004-2005 year and large effects of 0.71 against the 2005-2006 pre-intervention years.

Figure 4. Phoneme Segmentation Fluency Across Years



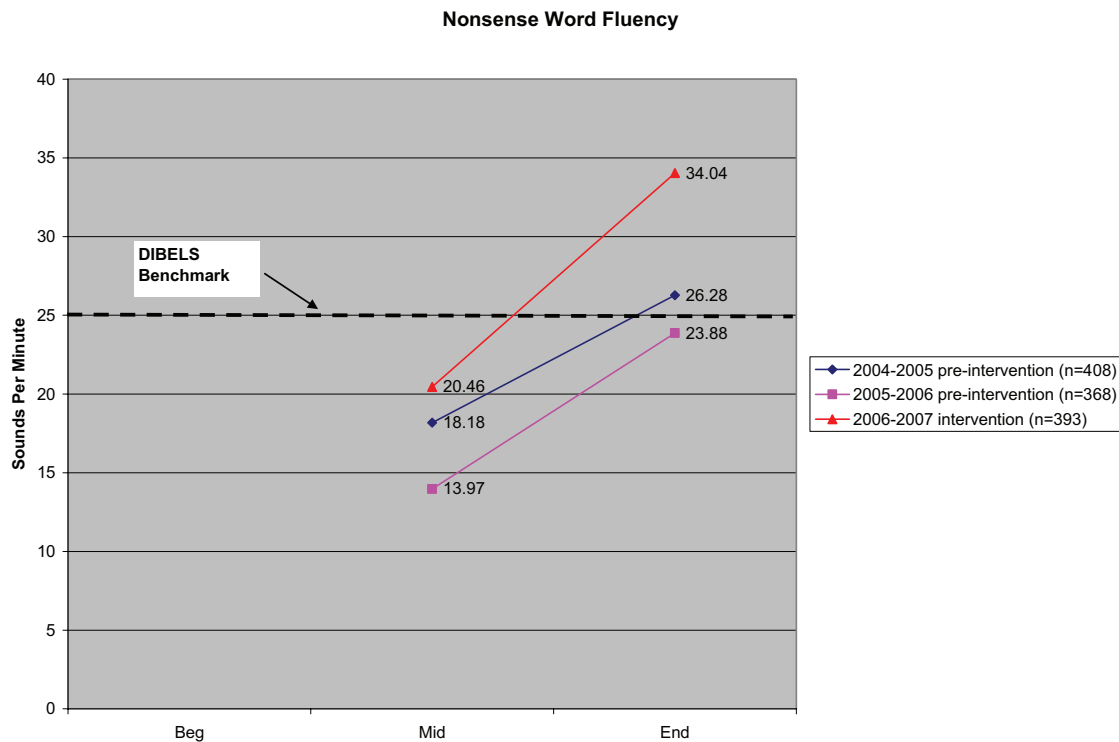
Growth rates for PSF are reflected in Table 2 and Figure 2. As evident in the figure, students in the 2006-2007 intervention years grew at rates much larger than either of the previous years. In addition, only students in the intervention year reached the DIBELS benchmark at the end of the year.

Nonsense Word Fluency

An ANOVA conducted on the NWF measure shows that end-of-year performance of the 2006-2007 intervention groups was significantly better than the 2005-2006 ($p < .001$) and 2004-2005 pre-intervention groups ($p < .001$). The 2004-2005 pre-intervention intervention groups were significantly better from the 2005-2006 groups ($p < .05$). No significant difference between these groups was found at the mid-year assessment. Figure 5 illustrates these analyses.

Effect size differences comparing intervention years (2006-2007) to pre-intervention years found moderate effects of 0.40 against the 2004-2005 year and moderate effects of 0.57 against the 2005-2006 pre-intervention years.

Figure 5. Nonsense Word Fluency Across Years



Growth rates for NWF are reflected in Table 2 and Figure 2. As evident in the figure, students in the 2006-2007 intervention years grew at rates much larger than either of the previous years. In addition, only students in the intervention year and the 2004-2005 pre-intervention years reached the DIBELS benchmark at the end of the year.

General Conclusions

Overall, the data analysis showed that across the three years of DIBELS data collection, the largest gains and highest levels of student performance were significantly greatest during the 2006-2007 intervention years. Comparisons across measures showed this to be evident for the ISF, PSF, and NWF measures. It does appear that performance during the 2005-2006 pre-intervention years was somewhat lower than the 2004-2005 pre-intervention years. Effect size calculations found moderate effects for PSF and NWF comparing the intervention year to the pre-intervention 2004-2005 year, with large effects evident against the 2005-2006 pre-intervention years.

Although no direct comparison group within years was available, the cross-year comparison does imply that students performed best during the intervention year. Given that the district demographics would not change substantially across this period, the data does imply that the impacts of the intervention were significant and substantial.