



# Wayne County Community Learning Centers Program Evaluation 2013 Data Analysis Report

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# Wayne County Community Learning Centers Program Evaluation

## 2013 Data Analysis Report

Elizabeth Pardue  
Demographic Research Specialist

Jennifer M. Shand, Ph.D.  
Director

Kent Sowards  
Associate Director

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One John Marshall Drive | Huntington, WV 25755  
p 304.528.7201 | f 304.522.0024 | [cber@marshall.edu](mailto:cber@marshall.edu)

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## Introduction

The Wayne County Community Learning Centers (WCCLC) program is one of several 21<sup>st</sup> Century Community Learning Center Programs in West Virginia, and is part of a West Virginia Department of Education (WVDE) statewide initiative to improve student education and provide opportunities for lifelong success. The partnership between the WCCLC and its community and business partners, including the Wayne County Board of Education and Playmates Preschools and Child Development Centers, Inc., provides an essential framework of stability and support to achieve its goals.

The WCCLC is an educational and learning coalition comprised of 31 programs hosted in all Wayne County public schools (elementary, middle and high schools) and seven Playmates locations (West Virginia Department of Education 2014). The Program operates afterschool and summer activities to assist students through a number of services, including:

- Tutoring
- Physical fitness
- Homework assistance
- Entrepreneurship skills development
- Science, Technology, Engineering and Mathematics (STEM).

The WCCLC program relies on the participation of all community Playmates locations, the Wayne County Superintendent, county principals and teachers and the strong partnership between them (West Virginia Department of Education 2014). The Program has served, on average, more than 2,500 students annually and typically serves more than 800 students per day. On average, more than 1,100 students attend WCCLC programs for at least 30 days during the school year.

Playmates contracted with the Marshall University Center for Business and Economic Research (CBER) to conduct a preliminary analysis of student performance data as an overview of the WCCLC program. The analysis will examine recent educational outcomes and serve as a baseline for future annual evaluations of the Program and its effectiveness in improving the quality of education in Wayne County.

## Data and Methodology

To assess student outcomes, CBER analyzed academic performance and student behavior data for two recent school years. School performance outcomes were collected from West Virginia Education Information System (WVEIS) Grade Point Average (GPA) data for all students attending WCCLC programs during the 2010-11 and 2011-12 school years. Performance is measured by participant period grades for each course.

Each student entry was evaluated for missing, incomplete or unusable records to ensure data were consistent across both years. Incomplete entries were excluded from

the analysis. Observations were omitted if:

- The school identifier was unavailable
- The class level identifier was unavailable
- Grade data was incomplete (for calculating GPA)
- The student’s WCCLC participation was for only one year.

GPA’s for each student were calculated for both school years and matched using the student’s Universal Student ID number. Changes in student GPA’s were considered first among all student participants in the WCCLC program. A subset of the sample, consisting of a targeted group of “at-risk” students, was considered in addition. Participants qualify as at-risk if their GPA was less than 2.5 in the 2010-11 school year, as determined in conjunction with the WCCLC. The numeric and percentage changes in each student’s GPA from the 2010-11 and 2011-12 school years were calculated.

It is important to note that, particularly for the results of the WVEIS data analysis, the current baseline study is primarily descriptive, and results should be interpreted with care. The absence of relevant variables in the current dataset limits the statistical accuracy of findings, and prevents the analysis from attributing observed outcomes to WCCLC programming specifically.

Teacher-reported student behavior improvements from the Profile and Performance Information Collection System (PPICS) survey for the 2011-12 school year are also included. These results indicate behavior improvements only for those WCCLC participants whom teachers identified as needing improvement.<sup>1</sup>

## Discussion of Results

### Student GPA Improvements

The analysis indicates improvement for some WCCLC students in both academic and behavior outcomes. Participants in the at-risk subgroup in particular experienced larger improvements in the number of students with increased GPA’s and in GPA score improvements in the 2011-12 school year relative to 2010-11 (see Table 1).

*Table 1 WCCLC Student Performance Data*

	All Participants	At-Risk Participants
<b>Total Number of Students Observed</b>	1,460	349
<b>Average Change in GPA (point)</b>	(0.06)	0.17
<b>Average Change in GPA (percent)</b>	2.3%	21.6%
<b>Students with Increased GPA</b>	43.8%	60.2%

<sup>1</sup> Participants must have attended WCCLC program activities for at least 30 days during the school year to be included.

According to WVEIS data, nearly 44 percent of all students participating in WCCLC programs had higher GPAs in the 2011-12 school year relative to 2010-11.<sup>2</sup> On average, GPAs for these students increased roughly 0.37 points, or approximately 23 percent.<sup>3</sup>

Improvements in GPA were larger in the at-risk group, which comprised nearly 24 percent of all student participants in this analysis. More than 60 percent of at-risk students' GPAs increased between school years.<sup>4</sup> Among those at-risk students who experienced improvement, GPAs increased roughly 0.60 points on average, an increase of more than 53 percent. GPAs for nearly 32 percent of these students increased to at least 2.5, meaning these students would no longer be considered at-risk in the 2011-12 school year.

The magnitude of change among participants who experienced improvement varied widely, ranging from 0.04 percent to 2360 percent, with the largest increase associated with the at-risk subgroup (see Table 2). When disaggregating all participants into the targeted at-risk and not targeted sub-groups, the targeted group only accounts for one-third of participants experiencing an increase. The magnitude of the increase, however, is substantial compared to the remaining students. On average, the targeted at-risk subgroup GPA increase is seven times that of the remaining students. Additionally, half of the students in the targeted at-risk subgroup realized an increase in GPA of 30 percent or greater, as indicated by the median improvement.

This disparity suggests that the targeted subgroup of students may be driving observed GPA improvements among all WCCLC participants in Wayne County. Further examination of the relationship between the point change in GPA and student at-risk status indicates that being classified as at-risk increased a student's GPA change by 0.30 points.<sup>5</sup> Additional review is needed to further substantiate this result.

*Table 2 Statistics for Participants with Improved GPA Only*

	<b>All Participants</b>	<b>At-Risk Participants</b>	<b>Participants Not At-Risk</b>
<b>Students with GPA Improvement</b>	639	210	429
<b>Maximum GPA Improvement</b>	2,360.0%	2,360.0%	38.9%
<b>Minimum GPA Improvement</b>	0.04%	0.5%	0.04%
<b>Average GPA Improvement</b>	23.1%	53.2%	8.4%
<b>Median GPA improvement</b>	9.5%	30.0%	6.1%

<sup>2</sup> An additional 4 percent of students experienced no change in GPA during this time period.

<sup>3</sup> Includes the average of only those students who experienced an increase in GPA.

<sup>4</sup> Less than 1 percent of student GPAs remained unchanged in the targeted group.

<sup>5</sup> The correlation coefficient for point change in GPA and student at-risk status is 0.24.

### Further Considerations

Changes in two observations may significantly influence the results.<sup>6</sup> These outliers were excluded to better examine the results (see Table 3). The reduction in average GPA improvements in both groups represents a more accurate depiction of WCCLC student performance outcomes.<sup>7</sup> Even after excluding the students that experienced the most substantial increases in GPA, the improvement in GPA for the remaining at-risk students is double the group overall. Thus, the data indicate that at-risk student participants experienced substantial gains in GPAs, even when accounting for outliers.

Table 3 Participants with Improved GPA (Excluding Outliers)

	All Participants	At-Risk Participants
<b>Students with GPA Improvement</b>	637	208
<b>Maximum GPA Improvement</b>	300.0%	300.0%
<b>Minimum GPA Improvement</b>	0.04%	0.5%
<b>Average GPA Improvement</b>	17.9%	37.4%
<b>Median GPA improvement</b>	9.5%	29.6%

### Teacher-Reported Improvements in Student Behaviors

Behavioral changes in WCCLC program participants were assessed using the PPICS teacher survey results for the 2011-12 school year. Table 4 includes improvements—measured as significant, moderate, slight and total improvements—for 10 behaviors reported by teachers. For those students needing improvement in the behavioral factors listed, a notable majority showed improvement between the 2011-12 school year.

Table 4 Teacher-Reported Behaviors for Students Needing Improvement 2011-12 School Year

Teacher-Reported Behaviors	Significant Improvement	Moderate Improvement	Slight Improvement	Total Improvement
<b>Turning in homework on time</b>	21.6%	48.7%	26.1%	<b>96.4%</b>
<b>Completing homework to your satisfaction</b>	26.6%	45.1%	24.0%	<b>95.7%</b>
<b>Participating in class</b>	30.5%	35.6%	28.5%	<b>94.6%</b>
<b>Volunteering</b>	14.8%	41.3%	29.6%	<b>85.7%</b>
<b>Attending class regularly</b>	12.3%	47.2%	25.2%	<b>84.7%</b>
<b>Attentive in class</b>	20.4%	36.9%	35.2%	<b>92.5%</b>
<b>Behaving in class</b>	18.0%	39.0%	32.0%	<b>89.0%</b>
<b>Academic performance</b>	23.7%	40.4%	31.7%	<b>95.8%</b>
<b>Coming to school motivated to learn</b>	24.6%	35.7%	30.8%	<b>91.1%</b>
<b>Getting along well with other students</b>	15.5%	42.7%	33.9%	<b>92.1%</b>

<sup>6</sup> As both observations are for targeted students, these outliers do not affect the statistics of participants not considered to be at-risk.

<sup>7</sup> Standard deviations decreased when the outlier observations were omitted. This reduction indicates an improvement in estimates by reducing the margin of error.



## Recommendations for Future Analysis

The preliminary analysis provided in this report indicates improvement—even between just two school years—for students participating in WCCLC programs in Wayne County. These improvements are shown through increases in GPA, particularly among a group of targeted at-risk students participating in the Program, as well as through behavior improvements as reported by their teachers in the PPICS teacher survey. Based on this preliminary analysis, CBER proposes the following recommendations, which are intended to improve further analysis of WCCLC programs.

1. **Add school day absences to the current WVEIS grade and disciplinary reports.**

Given the understanding that more absences from regular school days inhibits a student's ability to better know and understand course materials, having access to absences by student would allow better analysis for any possible relationships between school attendance and disciplinary incidents.

2. **Include student WVEIS numbers with teacher survey responses.** Providing student WVEIS numbers with teacher survey responses would assist in better determining any possible link(s) between behavioral improvements and increases in cumulative GPA, especially when also examining other factors in conjunction.

3. **Include other evaluation criteria for improved analysis.** As more data are made available, a time series evaluation approach can provide more detailed analysis of the benefits of the WCCLC programs to all participating students as well as those who are at-risk. Such criteria can include socioeconomic status (SES) of students and their families, free or reduced lunch status of students and student participation in various activities, but should not be limited to this list alone. A time series approach can better target improvements based on a school, site and/or grade-level.

4. **Create a control group for better comparison.** Incorporating a control group of students who are not participating in the WCCLC system will greatly improve program evaluation by allowing better examination of what improvements can be attributed to WCCLC alone. This will be particularly useful in conjunction with a time series approach, and will require the same detailed information for control group students as with those participating in the WCCLC programs (including, but not limited to, WVEIS data, SES, attendance, free/reduced lunch status and behavioral changes from the PPICS teacher survey). Using the universal student ID numbers provided through WVEIS maintains student anonymity in both cohorts, insuring privacy rights are not violated.

5. **Collect and evaluate longitudinal data as analysis progresses.** As data collection and analysis continues for WCCLC programs, gathering and analyzing all longitudinal data available will be a useful tool in the creation of progress reports. Such evaluations will provide enhanced statistical analysis options not available when comparing only a few years of data, and will serve as a more comprehensive measure of the true impacts of the WCCLC programs on student outcomes.

## References

West Virginia Department of Education. 2014. *21st Century Community Learning Center Programs*. <http://wvde.state.wv.us/21stcclc/programs.html>.