

Implementation of the Master Plan for Statewide Professional Staff Development for 2013-2014

An Evaluation Study





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2014-2015**

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An Evaluation Study

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Contents

Executive Summary	vii
Introduction.....	1
Goals of the Evaluation.....	1
Relevant Scholarship	2
Methods	5
Population Characteristics.....	5
Sampling Procedures	6
Measures	7
Results.....	9
Effectiveness	10
EQ1. What was the level of implementation for the PD Master Plan, overall and by individual providers?	10
EQ2. What were the impediments, if any, to the full implementation of the PD Master Plan?	12
EQ3. To what extent did providers’ offerings reflect the WVBE Standards for Professional Learning?	13
EQ4. To what extent did providers’ offerings reflect research-based practices?	13
Efficiency.....	19
EQ5. To what extent did providers collaborate in the delivery of professional development?.....	19
Impact	21
EQ6. How well did providers’ offerings address the WVBE’s 2013-2014 Goals for Professional Learning?.....	21
EQ7. What was the impact of the professional development offered through the 2013-2014 PD Master Plan on educators’ knowledge, practice, and attitudes?	22
Discussion.....	26
Effectiveness of the Master Plan.....	26
Efficiency of the Master Plan	27
Impact of the Master Plan	27
Limitations of the Study	27
Recommendations	28

References..... 29

Appendix A. Research-Based PD Practices Index 33

Appendix B. Additional Data Tables and Figures..... 35

List of Figures

Figure 1. Trends in Participation of Provider Groups in the PD Master Plan, 2011–2012 through 2013–201410

Figure 2. Percentage of Sessions Included in the PD Master Plan That Were Reported as Delivered by Provider Group and Provider12

Figure 3. Percent of School-Based Respondents That Agreed or Strongly Agreed That Five Research-Based PD Practices Were Present in the Sessions They Attended by Role Group 15

Figure 4. Percent of School-Based Respondents That Agreed or Strongly Agreed That Five Research-Based PD Practices Were Present in the Sessions They Attended by Provider Group16

Figure 5. Distribution of Attendees Across Duration and Timespan Categories by Provider Group 18

Figure 6. Average Number of Collaborations per Session by Provider 20

Figure 7. Provider Group Collaborations..... 20

Figure 8. Percent of Respondents Who Agreed or Disagreed That the Session Was Helpful in Meeting the Targeted Board Goal..... 22

Figure 9. Reported Impact of PD on Knowledge, Practice, and Attitudes by Provider Group 24

Figure 10. Perceived Impact of Professional Development (Retrospective Pre/Post): Effect Size by Provider 25

List of Tables

Table 1. 2013-2014 PD Master Plan Evaluation Questions, Indicators, and Data Sources: Alignment with Legislative Mandate 8

Table 2. Reported Number and Percent of Sessions That Met Each Board Standard by Provider.....13

Table 3. Percent Agreed/Strongly Agreed the Session They Attended Met This Criteria by Provider..... 17

Table 4. Coverage of Board Goals for Professional Learning21

Table 5. Overall Average Self-Scores for Extent of Knowledge, Practice, and Beliefs Before and After Professional Development 23

Table 6. Interpretation of Effect Size Estimates Used in this Study 24

List of Appendix Figures and Tables

Figure A 1. Average Rate of Agreement or Disagreement That Professional Development Attended Adhered to Research-Based Practices, by Role Group.41

Figure A 2. Duration of Professional Development by Individual Provider 43

Figure A 3. Timespan of Professional Development by Individual Provider 44

Table A 1. Participant Survey Response Rates, Confidence Levels, and Confidence Intervals by Provider Group and Provider..... 35

Table A 2. Number of Sessions in the PD Master Plan, and Number and Percent Delivered by Provider Group and Individual Provider 36

Table A 3. Provider Performance in Submitting E-mail Addresses for Participants in Professional Development Sessions They Conducted 37

Table A 4. Reasons Given for Not Implementing Some Sessions in the PD Master Plan by Provider..... 38

Table A 5. Provider Explanations for Sessions Not Delivered or Not Reported 39

Table A 6. Percent of Respondents That Reported Presence or Absence of Research-Based PD Practices by Role Group..... 40

Table A 7. Percent of School-Based Respondents That Agreed or Strongly Agreed Five Research-Based PD Practices Were Present in the Sessions They Attended, by Individual Provider 42

Table A 8. Participants' Views About Helpfulness of the Session in Meeting the Targeted Board Goal 45

Table A 9. Perceived Impact of Professional Development (Pre/Post) Overall, by Provider Group, and by Individual Provider: Statistical Significance and Effect Size..... 46

Executive Summary

The state board is required to “institute a system for the coordination and delivery of high-quality professional development,” (W. Va. Code §18-2I-1), including defining goals and standards for professional development, and roles and responsibilities for state and regional professional development providers. Accordingly, the board is required to establish an annual master plan for professional development in public schools across the state, to include the “state board-approved plans for professional development by the State Department of Education, the Center for Professional Development, the state institutions of higher education and the regional educational service agencies to meet the professional development goals of the state board” (W. Va. Code §18-2I-4). The state board is also required to establish processes for evaluating the “effectiveness, efficiency, and impact of the statewide professional development plan” and submit its report to the Legislative Oversight Commission on Education Accountability” (W. Va. Code §18-2I-4). As in previous years, the board charged the West Virginia Department of Education’s (WVDE) Office of Assessment and Research with the responsibility of conducting the evaluation.

In response to these requirements, the goals of this evaluation are to study the effectiveness, efficiency, and impact of the statewide master plan for professional development (PD Master Plan) by investigating seven questions:

With regard to effectiveness,

- EQ1. What was the level of implementation for the PD Master Plan, overall and by individual providers?
- EQ2. What were the impediments, if any, to its full implementation?
- EQ3. To what extent did providers’ offerings reflect the WVBE Standards for Professional Learning?
- EQ4. To what extent did providers’ offerings reflect research-based professional development practices?

With regard to efficiency,

- EQ5. To what extent did providers collaborate in the delivery of professional development, thereby reducing duplicative efforts?

With regard to impact,

- EQ6. How well did providers’ offerings address the WVBE’s 2013-2014 Goals for Professional Learning?
- EQ7. What was the impact of the professional development offered through the 2013-2014 PD Master Plan on educators’ knowledge, practice, and attitudes?

Methods

Population studied

The unit of analysis for this study was the individual provider required by W. Va. Code §18-2I to participate in the PD Master Plan. This provider group included the following organizations and agencies:

- Center for Professional Development (CPD)
- Two of the required ten public institutions of higher education (IHEs) with teacher education programs
 - Fairmont State University
 - Marshall University (two programs: Clinical Studies and Professional Development Schools and the June Harless Center)
- All eight regional education service agencies (RESAs)
- Eleven offices in the West Virginia Department of Education (WVDE) that provide professional learning experiences to educators across the state, including the Offices of
 - Assessment, Accountability, and Research
 - Career and Technical Accountability and Support
 - Career and Technical Instruction
 - Early Learning
 - Federal Programs
 - Institutional Education Programs
 - Instructional Technology
 - Professional Preparation (Certification)
 - School Improvement
 - Secondary Learning
 - Special Programs

To investigate the performance of these 23 organizations and agencies we surveyed the participants in the professional development sessions they offered, to gain their views about the quality of their learning experiences. This population included, among others, district central office staff, school administrators, general and special education teachers, instructional support teachers, school librarians/media specialists, and paraprofessionals.

Research design

To investigate the seven evaluation questions, we collected data from providers in the form of *session reports*, which required providers to report for each session they conducted, such information as the alignment of the session with the seven state Board Standards for Professional Learning, the beginning and ending dates, the duration and attendance for the session, its format and county location, and e-mail addresses for participants. The reporting year was divided into three collection periods: July 1 through November 30, 2013, December

1, 2013 through April 30, 2014, and May 1 through June 30, 2014. E-mail addresses submitted during the first two data collection periods were used in a *survey of participants* conducted in two parts, with one random sample of unique participants surveyed in January 2014 and a second sample in June 2014. It should be noted that participants in professional development that took place during the third data collection period (May 1–June 30, 2014) were not surveyed because of the difficulties involved in collecting data from educators during the summer months.

In addition to the session reports and the participant survey data, extant documents were used, especially Board policies, in order to put certain aspects of the study into context.

Findings

Major findings for 2013-2014 include the following, arranged here by effectiveness, efficiency, and impact:

Effectiveness of the Master Plan

- The PD Master Plan included more topics (479), sessions (1,056), and participants (33,196) than in previous years.
- Regarding the effectiveness of providers in meeting the Board Standards for Professional Learning, overall, the standards that providers most often believed they had met were Standard 7 (“Aligns its outcomes with educator performance and student curriculum standards”) and Standard 5 (“Integrates theories, research, and models of human learning into learning designs to achieve its intended outcomes”). The two standards providers least often reported meeting were Standard 4 (“Uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning”) and Standard 6 (“Applies research on change and sustains support for implementation of professional learning for long-term change”).
- Regarding the extent to which providers’ offerings reflected five research-based professional development practices, overall, there was the greatest agreement that the professional development had focused *on content and content pedagogy*. *Active learning* scored lowest; second lowest was respondents’ estimation that the session had provided sufficient *duration and timespan* to allow them to apply what they were learning. Participants were largely in agreement that the professional development had been well aligned (*coherent*) with their own needs and those of the school and district, and that it had been delivered to allow for participation with colleagues (*collective participation*).
- Providers’ session reports seemed to confirm the findings about duration and timespan above. Of the 33,000 attendees reported by providers, about 5,700 educators participated in professional development lasting at least 30 hours; another 5,400 had from 14 to 29 contact hours—durations shown by research to be the minimum needed to change teacher practice and impact student learning. The remaining two-thirds of participants attended sessions ranging from 1 to 13 hours. About half of all sessions began and ended on the same day.

Efficiency of the Master Plan

- The Legislature's call for decentralization of professional development seemed to be reflected in the trends for the four major providers in the Plan, with the WVDE decreasing their number of offerings and participants from the previous year, while the RESAs' slate of offerings rose dramatically, as did their participant counts. CPD continued its trend upward for both topics and participants, while IHES remained stable. Still, the WVDE reported the greatest number of both sessions held and participants in attendance.
- RESAs and WVDE offices operated very collaboratively, partnering with each other and IHEs. According to CPD session reports, they worked almost completely independently of other providers. It should be noted, however, that CPD, like the RESAs, seeks input from the WVDE and others when setting its slate of offerings.

Impact of the Master Plan

- While all four of the Board Goals for Professional Learning received coverage, Goal 2 (“Increase deep content knowledge and proficiency in designing and delivering standards-driven instruction and assessments”) was the focus of about 80% of sessions (n = 858) with 73% of attendees (n = 24,233).
- The participant surveys showed a high level of general agreement—at least 75%—that the sessions they attended had been helpful in meeting the Board goal with which it was aligned.
- According to retrospective self-reports, the professional development had large effects on educators' knowledge of the PD topic, and moderate effects on their practice and attitudes/beliefs.

Limitations of study

The response rate for this study was lower than usual (50.5%), which may have introduced sampling bias. Further, respondents were asked to recall PD sessions they had participated in at some point in the past—up to 5 months prior to the survey—so there is a possibility of temporal bias. The use of a retrospective pretest/posttest methodology to assess changes in knowledge, behavior and skills, and attitudes and beliefs poses some concerns, including the possibility of inflated estimations of impacts on respondents' knowledge, practice, and attitudes/beliefs.

Conclusion and Recommendations

Based on these findings, we make the following recommendations.

In keeping with the Board Standards for Professional Learning,

- Increase use of a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning, and
- Increase application of research on change and sustain support for implementation of professional learning for long-term change.

With regard to the use of research-based PD practices,

- Increase active learning during professional development sessions, and
- Provide sufficient duration (30 or more hours) and timespan (weeks or months) to allow participants opportunities to apply what they are learning.

Based on factors present in the larger context of professional development in the state, we recommend that the West Virginia State Board of Education and Department of Education

- Bring all ten of the public IHEs with teacher education programs into the PD Master Plan (two participated in 2013-2014).
- Promote the Board's Standards for Professional Learning at the school and district level, so they will better guide educators' planning.
- Consider adoption of a model for professional development providers that aligns with and supports local learning communities working to adopt the Board's Standards for Professional Learning.
- Revisit the purposes and possible uses of the PD Master Plan to guide professional learning—aligning it with the Transforming Professional Development Initiative.
- Consider ways to put the evaluation of the PD Master Plan to better use—reshaping the evaluation and its purposes as the plan itself is reshaped.

Introduction

In 2013, the West Virginia Legislature passed and the Governor Earl Ray Tomblin signed new legislation requiring broad reforms resulting, in part, from the Governor's *Education Efficiency Audit of West Virginia's Primary and Secondary Education System* (Public Works, 2012). This report urged decentralization of the state's public education system, with more authority and responsibility transferring back to regional education service agencies (RESAs), districts, and schools. At the same time, the Legislature recognized the need for "clear state-level leadership for professional development for all West Virginia public school educators and administrators" (W. Va. Code §18-2I-1). Accordingly, it continued the requirement that the state board "institute a system for the coordination and delivery of high-quality professional development," (W. Va. Code §18-2I-1), including defining goals and standards for professional development, and roles and responsibilities for state and regional professional development providers. The state board was required to establish an annual master plan for professional development in public schools across the state, to include the "state board-approved plans for professional development by the State Department of Education, the Center for Professional Development, the state institutions of higher education [with teacher education programs] and the regional educational service agencies to meet the professional development goals of the state board" (W. Va. Code §18-2I-4).

The state board was also required to establish processes for evaluating the "effectiveness, efficiency, and impact of the statewide professional development plan" and to submit its report to the Legislative Oversight Commission on Education Accountability" (W. Va. Code §18-2I-4). The state board, as in the previous three years, charged the West Virginia Department of Education's (WVDE) Office of Assessment and Research with the responsibility of conducting the evaluation.

Goals of the Evaluation

The goals of this evaluation are to study the effectiveness, efficiency, and impact of the statewide master plan for professional development (PD Master Plan) by investigating seven questions:

With regard to effectiveness,

- EQ1. What was the level of implementation for the PD Master Plan, overall and by individual providers?
- EQ2. What were the impediments, if any, to its full implementation?
- EQ3. To what extent did providers' offerings reflect the WVBE Standards for Professional Learning?
- EQ4. To what extent did providers' offerings reflect research-based professional development practices?

With regard to efficiency,

- EQ5. To what extent did providers collaborate in the delivery of professional development, thereby reducing duplicative efforts?

With regard to impact,

- EQ6. How well did providers' offerings address the WVBE's 2013-2014 Goals for Professional Learning?
- EQ7. What was the impact of the professional development offered through the 2013-2014 PD Master Plan on educators' knowledge, practice, and attitudes?

Relevant Scholarship

In 2012, the West Virginia Board of Education adopted the Learning Forward Standards for Professional Learning, paraphrased in the PD Master Plan as follows:

Professional learning that increases educator effectiveness and results for all students—

- Occurs within **learning communities** committed to continuous improvement, collective responsibility, and goal alignment.
- Requires skillful **leadership** to develop capacity, advocate, and create support systems for professional learning.
- Requires prioritizing, monitoring, and coordinating **resources** for educator learning.
- Uses a variety of sources and types of student, educator, and system **data** to plan, assess, and evaluate professional learning.
- Integrates theories, research, and models of human learning into **learning designs** to achieve its intended outcomes.
- Applies research on change and sustains support for **implementation** of professional learning for long-term change.
- Aligns its **outcomes** with educator performance and student curriculum standards. (Learning Forward, n.d.; West Virginia Board of Education, 2013).

The standards were carefully researched in a comprehensive study of professional learning, conducted by a team of researchers from Stanford University led by Linda Darling-Hammond, with contributions and support from 40 professional associations. Working together, they make up components of a system of professional learning, which to be effective “most often occurs in learning communities; is supported by strong leadership and appropriate resources; is drawn from and measured by data on students, educators, and systems; applies appropriate designs for learning; has substantive implementation support; and focuses on student and educator outcomes” (Mizell, Hord, Killion, & Hirsh, 2011, p. 13). The Standards for Professional Learning, in other words, outline the *context* (learning communities, leadership, and resources), *educator learning processes* (data, learning designs, and implementation), and *content* (outcomes) needed for professional learning to result in improved practice and student outcomes.

Because these standards are meant to guide professional learning in schools and districts at the local level, they present a challenge to statewide and regional providers who must align their offerings with them. The standards are meant to guide teacher- and administrator-driven professional learning locally—which fits well with the efforts of the legislature and state board to provide greater autonomy and authority to schools and districts—while providers in the PD Master Plan must put together “plans/offerings” to support the state board’s goals in

a statewide system of professional development (W. Va. Code §18-2I-4; see box for a listing of the 2013-2014 Goals for Professional Learning). The Board Goals for Professional Learning reflected the priorities for the state education system, which was in its final year before the full implementation of the Next Generation state standards and the new teacher evaluation system. In 2013-2014 as in previous years, the master plan took the form of a slate of session topics, which were planned and implemented by the four major provider groups.

The state standards also posed challenges for the evaluation of the PD Master Plan. In prior years, this evaluation has investigated the fidelity of implementation of the plan, its effectiveness in supporting the designated Board goals, the quality of the experience for participants, and a retrospective pre-post participant self-assessment of changes in their knowledge, practice, and attitudes/beliefs. Due to the urgent and serious focus of the state board and legislature on improving professional learning experiences for educators across the state, the need for a review of the research literature became apparent.

The literature review (Hammer, 2013) revealed both contextual and quality issues to be considered in facilitating professional learning experiences for teachers and administrators. These findings fit well with the Learning Forward standards. Context matters, in that, professional development that is not supported by multiple components making up a system of support will likely have minimal impact on educators and students. Based on their studies in mathematics education and the broader education research literature, Cobb and Jackson (2011, p. 12) outlined a system that includes multiple elements, all working together:

- Explicit goals for students' learning
- A detailed vision of high-quality instruction that specifies particular instructional practices that will lead to students' attainment of the learning goals
- Instructional materials and associated tools designed to support teachers' development of these practices
- District teacher professional development that focuses on the specific practices, is organized around the above materials, and is sustained over time

2013-2014 Board Goals for Learning

Professional development for the 2013-2014 school year shall:

1. Increase the knowledge and skills of all pre-K educators to deliver a comprehensive preK–third grade approach to early childhood education that includes a balanced approach to early literacy.
2. Increase deep content knowledge and proficiency in designing and delivering standards-driven instruction and assessments for all preK-12 West Virginia educators.
3. Improve leadership competencies for principals and assistant principals in order to support high quality teaching and learning.
4. Support the full implementation of the revised educator evaluation system.

- School-based professional learning communities (PLCs) that provide ongoing opportunities for teachers to discuss, rehearse, and adapt the practices that have been introduced in district professional development
- Classroom assessments aligned with the goals for students' learning that can inform the ongoing improvement of instruction and the identification of students who are currently struggling
- Additional supports for struggling students to enable them to succeed in mainstream classes.

The literature review also revealed a widespread consensus about specific qualities of effective professional development—qualities that fit well with the fourth and fifth bullet items above and also aligned with the Learning Forward standards focused on *educator learning processes* (data, learning designs, and implementation), and *content* (outcomes). Within this context, research has shown that effective professional development tends to have the following elements:

- *Content and content pedagogy focus.* This element includes both deepening teachers' knowledge of the subject matter they are teaching and the pedagogical approaches that have been shown to be successful in helping students learn that subject matter. Effectiveness is improved if the professional development uses the curriculum materials that teachers will later use with their students (Blank, de las Alas, & Smith, 2008; Carpenter et al., 1989; Clewell et al., 2004; Cohen & Hill, 1998, 2001; Desimone, Porter, Garet, Yoon, & Birman, 2002; Desimone, Smith, & Phillips, 2013; Doppelt et al., 2009; Garet et al., 2001; Kennedy, 1998; McCutchen et al., 2002; Penuel, Fishman, Yagamuchi, & Gallagher, 2007; Yoon et al., 2007).
- *Coherence.* This element involves providing professional development experiences in a progression that builds on previous experiences and aligns with school goals and with state standards, curriculum, and assessments. Coherent professional development programs encourage continuing professional communication among teachers, either in their own school or with others in the district who teach similar subject matter or students (Cohen & Hill, 1998; Desimone et al., 2002; Garet et al., 2001; Grant, Peterson, & Shojgreen-Downer, 1996; Lieberman & McLaughlin, 1992).
- *Active learning.* Opportunities for active learning can include reviewing student data and work, practicing a new skill and obtaining feedback, planning how new curriculum materials and new teaching methods will be used in the classroom, and engaging in discussions and in written work (Desimone et al., 2002; Garet et al., 2001; Penuel, Fishman, Yagamuchi, & Gallagher, 2007).
- *Collective participation.* Professional development that has collective participation of teachers from the same school, department, or grade helps increase opportunities to discuss concepts, skills, and problems that arise when teachers work to integrate what they have learned into their classroom practice. Over time, it can lead to a professional culture—or learning communities—in which teachers in a school develop a common understanding of instructional goals, methods, problems, and solutions—an understanding that is sustained over time, even when some teachers leave and others join the group (Desimone et al., 2002; Desimone, Smith, & Ueno, 2006; Garet, et al., 2001;

Johnson, Kahle, & Fargo, 2007; Penuel, Fishman, Yagamuchi, & Gallagher, 2007; Saunders, Goldenberg, & Gallimore, 2009).

- *Duration, including time span and contact hours.* Depending on the complexity and difficulty of the knowledge and skills teachers are learning, the number of contact hours may vary, but research suggests that at least 30 hours are needed to impact student achievement. Sustaining the experience over one or more school years is also important, allowing for more opportunity for teachers to try out new practices and benefit from additional feedback and communication with trainers, coaches, or colleagues in professional learning communities in their schools (Blank, de las Alas, & Smith, 2008; Clewell et al., 2004; Yoon et al., 2007).

This evaluation focuses on these qualities in its measures of effectiveness due to the identified qualities' support of the Learning Forward standards, and their relevance to the realm of influence within which statewide and regional providers work.

Methods

To investigate the seven evaluation questions, we collected data from providers in the form of *session reports*, which required providers to report for each session they conducted, the alignment of the session with the seven state Board Standards for Professional Learning, the beginning and ending dates, the duration and attendance for the session, its format and county location, and e-mail addresses for participants. The reporting year was divided into three collection periods: July 1 through November 30, 2013, December 1, 2013 through April 30, 2014, and May 1 through June 30, 2014. E-mail addresses submitted during the first two data collection periods were used in a survey of participants conducted in two parts, with one random sample of unique participants surveyed in January 2014 and a second group in June 2014. It should be noted that participants in professional development that took place during the third data collection period (May 1–June 30, 2014) were not surveyed because of the difficulties involved in collecting data from educators during the summer months.

In addition to the session reports and the participant survey data, extant documents were used, especially Board policies, in order to put certain aspects of the study into context.

Population Characteristics

The unit of analysis for this study was the individual provider required by W. Va. Code §18-2I to participate in the PD Master Plan. This provider group included the following organizations and agencies:

- Center for Professional Development
- Two of the required ten public institutions of higher education (IHEs) with teacher education programs
 - Fairmont State University
 - Marshall University (two programs participated separately, Clinical Experiences and Professional Development Schools and the June Harless Center)
- All eight regional education service agencies (RESAs)

- Eleven offices in the West Virginia Department of Education (WVDE) that provide professional learning experiences to educators across the state, including the Offices of
 - Assessment, Accountability, and Research
 - Career and Technical Accountability and Support
 - Career and Technical Instruction
 - Early Learning
 - Federal Programs
 - Institutional Education Programs
 - Instructional Technology
 - Professional Preparation (Certification)
 - School Improvement
 - Secondary Learning
 - Special Programs

To investigate the performance of these 23 organizations and agencies we surveyed the participants in the professional development sessions they offered to gain their views about the quality of their learning experiences. This population included, among others, district central office staff, school administrators, general and special education teachers, instructional support teachers, school librarians/media specialists, and paraprofessionals.

Sampling Procedures

For both the first and second participant surveys, we applied multistage sampling—systematic, stratified, and simple random—to select participants for this study, using the following procedure:

- We combined the session participant e-mail addresses submitted in providers' session reports—each e-mail address with its associated PD Master Plan session ID and provider—into one comprehensive Excel file (N = 12,621 for the first participant survey; N = 9,024 for the second).
- In the second survey, email addresses that were included in the first survey sample were removed.
- Participants were sorted by e-mail address and assigned a random number. The sample was then resorted by random number and the first occurrence of each individual's e-mail address was selected, resulting in 8,285 unique email addresses for the first data collection period, and 4,608 for the second.
- The data were then stratified by provider. Knowing the population of each provider, the MaCorr Research Sample Size Calculator¹ was used to determine the sample size needed to be between a +/-3% confidence interval at the 95% confidence level. To that figure, an additional 50% was added when possible, to allow for attrition and lack of

¹. Available online at <http://www.macorr.com/sample-size-calculator.htm>.

response. A simple random sample was then drawn for each provider. For some providers reporting lower numbers of session participants, the entire population of unique e-mail addresses was included in the sampling. A total of 9,416 unique e-mail addresses were included in the sample. Of those 582 bounced back when the e-mail communications began, leaving a sample of 8,834 viable e-mail addresses.

Measures

To address the seven evaluation questions, different combinations of the two primary data sources described above and policy documents related to the Center for Professional Development and RESAs were employed, as outlined in Table 1 (next page).

Table 1. 2013-2014 PD Master Plan Evaluation Questions, Indicators, and Data Sources: Alignment with Legislative Mandate

Legislative Mandate	Evaluation Question	Indicators	Data Sources
Effectiveness	EQ1. What was the level of implementation for the PD Master Plan, overall and by individual providers?	<ul style="list-style-type: none"> Percentage of PD offerings that were planned versus the ones delivered Participation in the evaluation of the PD Master Plan Number of participants served 	2013-2014 PD Master Plan Session Report database (online system)
	EQ2. What were the impediments , if any, to its full implementation?	Reasons given by providers for why some planned sessions were not held	Providers' responses to query
	EQ3. To what extent did providers' offerings reflect the WVBE Standards for Professional Learning ?	Proportion of PD offerings that address each of the seven standards: (a) learning communities, (b) leadership, (c) resources, (d) use of data, (e) learning designs, (f) change and implementation, and (g) outcomes	2013-2014 PD Master Plan Session Report database (online system)
	EQ4. To what extent did providers' offerings reflect research-based professional development practices ?	Proportion of PD offerings that had the following elements: <ul style="list-style-type: none"> <i>Content and content pedagogy</i> focus; <i>Coherence</i> with teachers' professional needs, school goals, and state standards, curriculum, and assessments; <i>Active learning</i>, including time for planning implementation; <i>Collective participation</i> of teachers or administrators from the same district, school, grade level, content area, or specialization; and <i>Duration</i> (at least 30 hours) and <i>timespan</i> (over months or years) 	2013-2014 PD Master Plan Session Report database (online system) (duration/timespan) WVBE PD Master Plan Participant Survey 2013-2014
Efficiency	EQ 5. To what extent did providers collaborate in the delivery of professional development?	Number of sessions that were offered in partnerships among the PD Master Plan providers	2013-2014 PD Master Plan Session Report database Board policy documents for RESAs and CPD
Impact	EQ6. How well did providers' offerings address the WVBE's 2013-2014 Goals for Professional Learning ?	<ul style="list-style-type: none"> Proportion of PD offerings targeting each of the goals overall Participant reports of PD's helpfulness in meeting board goals 	2013-2014 PD Master Plan Provider Session Submissions database (online form) WVBE PD Master Plan Participant Survey 2013-2014
	EQ7. What was the impact of the professional development offered through the 2013-2014 PD Master Plan on educators' knowledge, practice, and attitudes?	Participant views of the impact of the PD on their own knowledge, practice, and attitudes	WVBE PD Master Plan Participant Survey 2013-2014

The online questionnaire used in the participant survey was similar to the one used in previous years with one significant exception. The quality measure used in previous years was replaced by a more comprehensive measure based on the findings of the literature review described in the Relevant Scholarship section above (page 2). Three questions were developed for each of five quality indicators—that is, content focus, coherence, active learning, collective participation, and duration/timespan—to form a Research-Based PD Practices Index (See Appendix A).

The online session report, which providers filled out to report each of the sessions they delivered, was similar to previous years. Policy and state code outlining the responsibilities of RESAs and the Center for Professional Development, used to understand contextual issues, especially with regard to collaboration, were accessed via the websites for the state board (<http://wvde.state.wv.us/policies/>) and the West Virginia State Legislature (<http://www.legis.state.wv.us/wvcode/Code.cfm?chap=18&art=1>).

Research Design

Descriptive statistics were employed for five of the seven evaluation questions above, that is, for EQ1 and EQ3-EQ6. For EQ2, a qualitative analysis was employed, which involved coding provider responses to a query asking for descriptions of the impediments they encountered that inhibited delivery of sessions for which no reports were received. Significance testing (paired *t* tests) was used to determine statistical significance of differences between participants' assessments of their knowledge, practice, and attitudes/beliefs before (pre) and after (post) the professional development they attended (EQ7). Practical significance was studied using the Cohen's *d* statistic to determine the effect size of those pre and post measures (EQ7). Also, we reviewed policy and state code requirements for various types of collaborations among the four major groups in the PD Master Plan to put findings into context.

Results

During the course of the 2013-2014 reporting year, 1,056 provider reports were completed, and 4,758 usable participant survey responses were received from a sample of 9,416, representing a 50.5% response rate, which was lower than in previous years, when rates tended to range from 63% to 66% (Table A 1, page 35).² This level of response to the participant survey poses challenges with regard to reporting on some measures of effectiveness and impact for individual providers—especially those that submitted relatively few participant e-mail addresses—as confidence intervals are larger than 5% for 10 of the 21 providers, even at a 90% confidence level. For this reason, caution should be used in interpreting findings for individual providers, and this report will focus less than usual on individual provider results from the participant survey. At the provider *group* level, however, the margins of error fall within a generally acceptable range ($\pm 1\%$ to $\pm 5\%$) for all four groups at the 90% confidence level; at the 95% confidence level results for three of the groups ranged from $\pm 2\%$ to $\pm 3\%$, with institutions of higher education having a larger margin of error ($\pm 6\%$) (Table A 1, page 35).

² The response rate is slightly higher, that is 54%, if calculating it from the random sample of viable e-mail addresses (8,834) only.

Effectiveness

EQ1. What was the level of implementation for the PD Master Plan, overall and by individual providers?

As one measure of the effectiveness of the plan’s implementation, this question will be addressed in two parts, including the overall participation in developing and implementing the master plan including the percent of professional development offerings that were planned versus the ones delivered; and the level of participation in the *evaluation* of the PD Master Plan.

Implementation of the PD Master Plan in 2013-2014

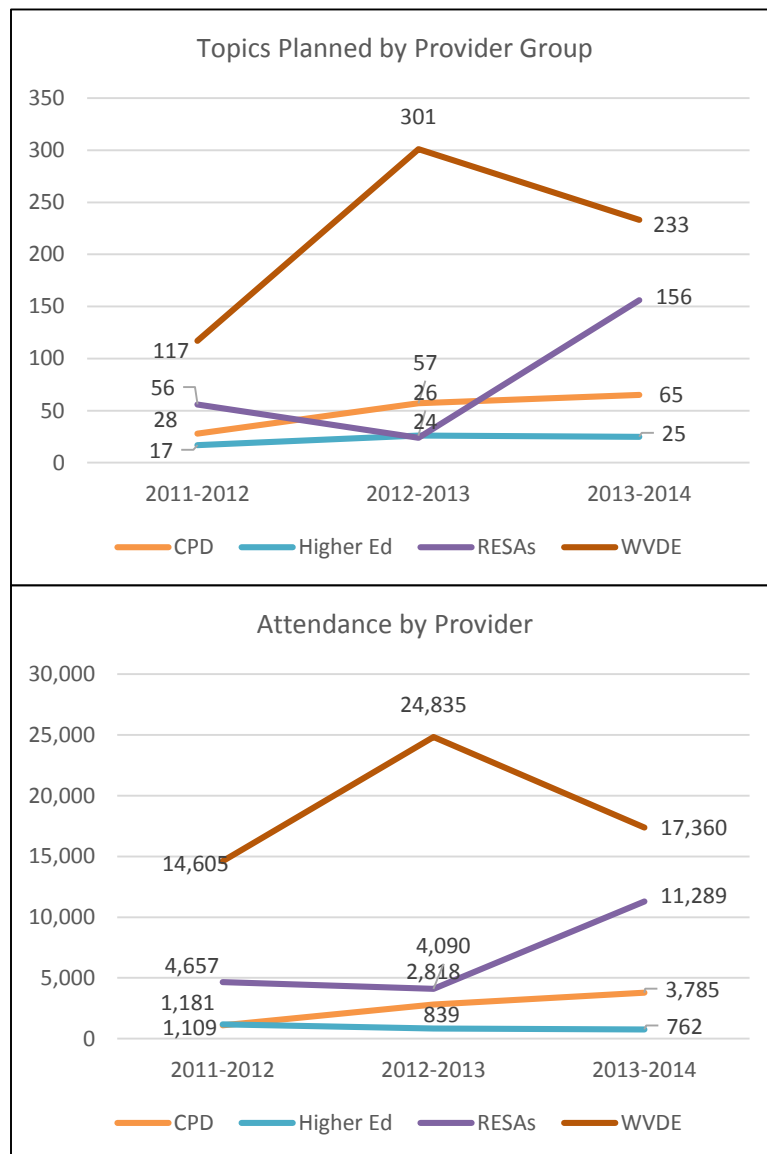


Figure 1. Trends in Participation of Provider Groups in the PD Master Plan, 2011–2012 through 2013–2014

Data Source: 2013-2014 PD Master Plan Session Report database

The number of providers remained about the same as during 2012–2013, with one exception. One more institution of higher education (IHE), Fairmont State University, joined Marshall University to participate in the plan. Eight other IHEs are required by W. Va. Code (§18-2I) to participate, but were not successfully recruited by WVDE to do so.

Decentralization of the delivery of professional development, as called for in education reform legislation passed in 2013, appears to be working (Figure 1). While the overall number of session topics submitted for the plan has risen strongly from 218 in 2011-2012, to 408 the following year, to 479 in 2013–2014, the number submitted by each of the four groups has shifted dramatically since 2012-2013, with the WVDE declining in both number of topics and number of participants, and RESAs increasing. Yet, the WVDE remains the provider group with the most topics and most par-

ticipants. The rise in RESA topics and participation may reflect, in part, a decision by the directors to participate more fully in the PD Master Plan than they have in previous years, in addition to true increases in the professional development they provide. In previous years, RESAs' annual reports reflected far more activity than that indicated by their reporting for the PD Master Plan. In 2013-2014, however, RESAs received additional funding to bolster their staffing for professional development and were assigned more responsibility for it than was previously assigned to the WVDE. The dramatic increases in the number of topics RESAs submitted to the plan, from three topics per RESA (one aligned with each of the Board goals) to as many as 49 topics (RESA 1), likely did reflect to some extent increases in their professional development activities, as well as increased participation in the PD Master Plan.

Most professional development planned by providers in the PD Master Plan was later delivered and reported. In all, 479 session topics were approved for the PD Master Plan for 2013-2014; of those over 80% (384) were reported as delivered—a similar percent as in previous years. About half of the organizations in the PD Master Plan provided over 90% of what they had planned. Three providers delivered and reported less than half of what was in their plan, including the WVDE Office of Secondary Learning (47.6%), the WVDE Office of Career and Technical Accountability (44.4%), and Marshall University's Clinical Experiences and Professional Development Schools (33.3%; see Figure 2 below and Table A 2, page 36).

Implementation of the evaluation of the PD Master Plan

Participation in the PD Master Plan also includes participation in its evaluation, which is done through *session reports* submitted online via a SurveyMonkey instrument. Providers may offer a topic listed for them in the PD Master Plan once or multiple times with different groups of individuals. Once a session is completed with a particular group of individuals including any follow-up, the provider submits a session report, which includes email addresses of participants. The submission of email addresses is central to the ability of this evaluation to contact participants and collect their impressions of their professional learning experiences via the Participants Survey.

Providers varied considerably in their compliance with this aspect of participation in the PD Master Plan evaluation. Of the four major groups, the Center for Professional Development and regional education service agencies performed best, supplying 98% and 94% of their participants' email addresses, respectively. Institutions of higher education supplied about three quarters (73%) and the West Virginia Department of Education supplied about two thirds (68%). Four offices in the Department were primarily responsible for the relatively low rate of compliance with the e-mail address requirement. The Office of Professional Preparation (Certification) submitted only 27% of the email addresses for participants in their sessions; similarly the Office of Career and Technical Accountability and Support submitted 23%. The Office of Secondary Learning provided only 4% of the requisite email addresses while the Office of Institutional Education Programs provided none.

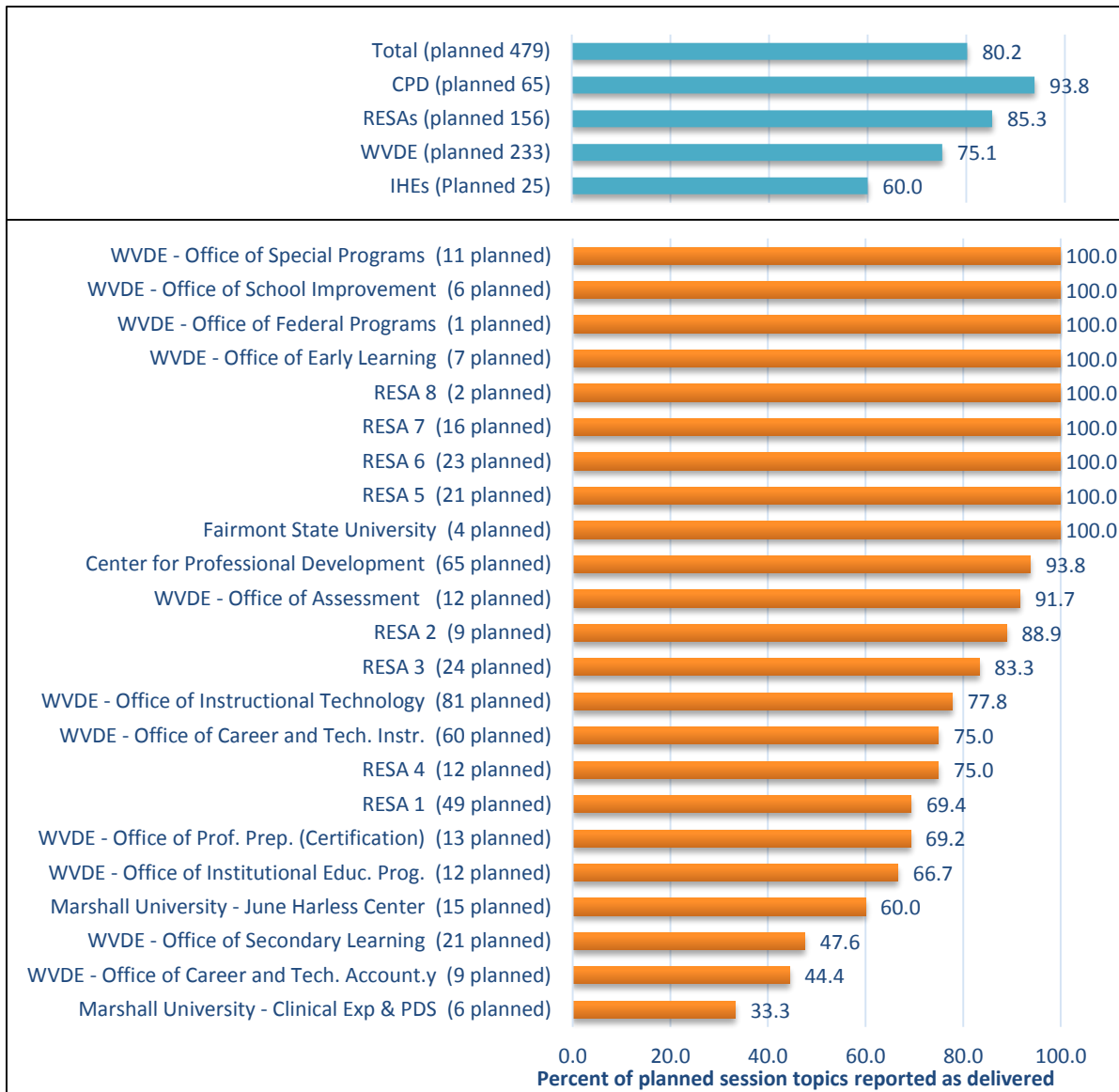


Figure 2. Percentage of Sessions Included in the PD Master Plan That Were Reported as Delivered by Provider Group and Provider

Data Source: 2013-2014 PD Master Plan Session Report database

EQ2. What were the impediments, if any, to the full implementation of the PD Master Plan?

Each of the providers that had session titles in the plan for which no reports were received was offered the opportunity to provide explanations for why the sessions were not held or reported. For more than half of the topics not reported (49), providers explained that the session actually was or would be provided, but on a different schedule (just before or just after the reporting year), was delivered by other means or providers, or was provided but not reported. Other sessions were cancelled due to lack of interest (22) or to unforeseen circumstances (8). An additional 14 sessions were not reported as delivered with no explanation provided, or had

other reporting errors. For a breakdown by provider see Table A 4 (page 38). Other summary details are available in Table A 5 (page 39).

EQ3. To what extent did providers' offerings reflect the WVBE Standards for Professional Learning?

As mentioned earlier, the Board is required in code to adopt standards for professional learning, which it did in 2012. The Board standards may best be viewed as standards to be met by individual schools and districts rather than by providers because, taken together, they make up a system for continuous school improvement in which all members of a school community have roles to play and decisions about professional development are based on students and teachers learning needs (see Relevant Scholarship, page 2). In such a system, providers may play a role, however, in delivering training on a topic or skill set educators have identified as being needed.

There was no practical way to learn from participants whether providers were aligning their offerings with all seven Board standards. We did, however, ask providers themselves which of the Board standards they had met for each of the sessions they reported. Results are shown in Table 2. While CPD claims to have met all standards for all sessions they offered, other providers were more circumspect in their assessments. Overall, the standards that providers most often believed they had met were Standard 7 (“Aligns its outcomes with educator performance and student curriculum standards”) and Standard 5 (“Integrates theories, research, and models of human learning into learning designs to achieve its intended outcomes”). The two standards providers least often reported meeting were Standard 4 (“Uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning”) and Standard 6 (“Applies research on change and sustains support for implementation of professional learning for long-term change”).

Table 2. Reported Number and Percent of Sessions That Met Each Board Standard by Provider

Board standard met	All (n = 1,320)		CPD (n = 163)		IHEs (n = 45)		RESAs (n = 384)		WVDE (n = 428)	
	N	%	N	%	N	%	N	%	N	%
1. Learning communities	673	66.0	163	100.0	22	48.9	305	79.4	183	42.8
2. Leadership	703	68.9	163	100.0	18	40.0	297	77.3	225	52.6
3. Resources	669	65.6	163	100.0	25	55.6	291	75.8	190	44.4
4. Data	575	56.4	163	100.0	19	42.2	270	70.3	123	28.7
5. Learning designs	733	71.9	163	100.0	30	66.7	316	82.3	224	52.3
6. Implementation	600	58.8	163	100.0	17	37.8	292	76.0	128	29.9
7. Outcomes	796	78.0	163	100.0	42	93.3	308	80.2	283	66.1

Data Source: 2013-2014 PD Master Plan Session Report database

EQ4. To what extent did providers' offerings reflect research-based practices?

The final measure of effectiveness used an index based on findings from a review of the research literature on effective professional development practices (Hammer, 2014; see

Appendix A, page 33). The index was more focused on what providers can do—versus what school and district staff can do—to design and implement professional development experiences that have a collection of qualities shown to be associated with changes in teacher practice and improved student performance. The index is, therefore, well suited to eliciting participant reports about which of these qualities were present in the sessions they were asked to comment upon (see box for items in the index). Response options included 1 (strongly disagree), 2 (disagree), 3 (agree), 4 (strongly agree), and *not applicable*. The index scores were based on the percentage of the 15 items that participants agreed or strongly agreed were present in the session they attended.

The index did have limited use for some role groups included in the survey sample, however, including RESA staff, district central office staff, and a miscellaneous *other* category. Research on effective approaches to professional development is much scarcer for these role groups. The index, therefore, is based on the richer research base focused on classrooms and schools. Table A 6 (page 40) shows the percentages of respondents from each role group that agreed or disagreed with each item or considered it not applicable. Substantial percentages of the non-school-based respondents found most of the items in this portion of the survey not applicable. These data are also summarized in Figure A 1 (page 41), which shows that, overall, educators in the classroom were most likely to find the items in the Research-Based PD Practices Index applicable (whether or not they agreed), non-school personnel were least likely, with principals bridging the gap.

RESEARCH-BASED PD PRACTICES INDEX

The professional development . . .

CONTENT FOCUS

1. Deepened my knowledge of the content area it covered.
2. Strengthened my instructional approaches for teaching the content area it covered.
3. Used curriculum materials I will be using with my students.

COHERENCE

4. Was relevant to reaching my school or district's goals for student learning.
5. Was challenging and helped me develop my skills to a new level.
6. Spent too much time repeating concepts I have learned before. (reverse scale item)

ACTIVE LEARNING

7. Included opportunities for discussions, reviewing student work, and/or written exercises.
8. Included valuable time to plan for implementation in my classroom, school, or district.
9. Allowed me opportunities to practice what I was learning and receive constructive feedback.

COLLECTIVE PARTICIPATION

10. Included colleagues in my content area, grade, or specialization from my school or district.
11. Motivated my colleagues and me to collaborate more in our shared work with students.
12. Helped my colleagues and me arrive at a common understanding and approach to instruction.

DURATION AND TIMESPAN

13. Had enough contact hours to help me learn the content and skills it encouraged.
14. Offered enough experiences during the school year for me to develop and successfully apply new skills.
15. Required more of my time than I think was needed for this topic. (reverse scale item)

Therefore, the following analyses will focus on the school-based respondents: principals/assistant principals, general and special education teachers, library media specialists, instructional support teachers, and paraprofessional/aides. Other sections of the survey will allow us to examine the views of the non-school-based respondents.

Looking only at school-based respondents, the level of agreement varied both by role group and by research-based practices (Figure 3). Overall, there was the greatest agreement that the professional development had focused on a content area, including instructional practices and use of curriculum materials;

principals, as might be expected, were the exception. Active learning scored lowest, followed by respondents' estimation that the session have provided sufficient duration and timespan to allow them to apply what they were learning. Participants were largely in agreement that the professional development had been well aligned (coherent) with their own needs and those of the school and district.

Looking once again only at school-based respondents, but this time focusing on differences among provider groups, active learning was the research-based PD

practice least often present, followed by duration/timespan with, in both cases, RESAs scoring the lowest (Figure 4). Content focus was the highest followed closely by coherence with WVDE scoring highest for the former and IHEs for the latter. About three quarters of participants in

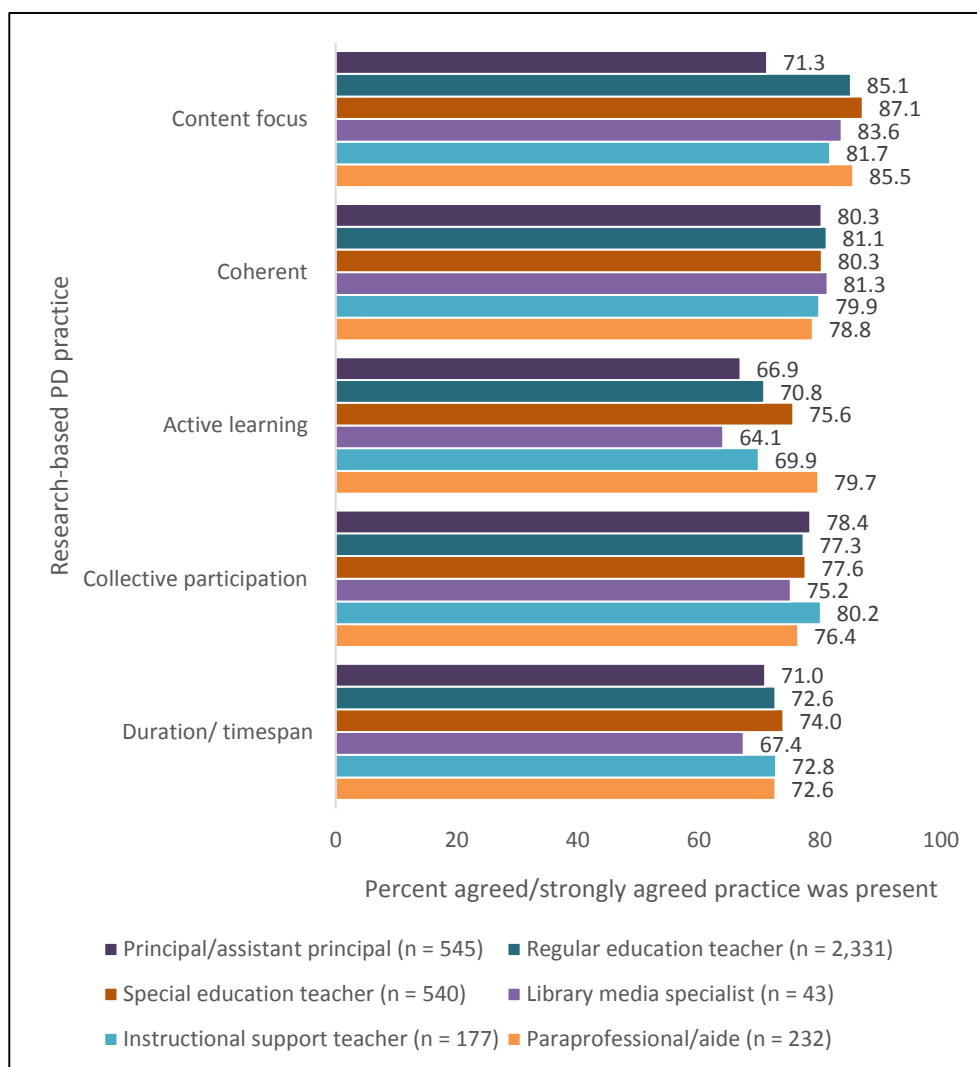


Figure 3. Percent of School-Based Respondents That Agreed or Strongly Agreed That Five Research-Based PD Practices Were Present in the Sessions They Attended by Role Group

Data Source: School-based respondents to WVBE PD Master Plan Participant Survey 2013-2014

professional learning offered by the Center for Professional Development, institutions of higher education, and the West Virginia Department of education indicated that the training they received was of sufficient duration and timespan for the content it covered. About two thirds of participants in RESA trainings reported the same.

Looking at individual providers (Table A 7 page 42), the top three overall performers in the use of research-based professional development were the WVDE Office of Career and Technical Accountability and Support with respondents agreeing or strongly agreeing that the 15 research-based professional development practices were present 89.6% of the time, Marshall University June Harless Center (85.6%), and the WVDE Office of Instructional Technology (85.2%). The three lowest performers were RESA 7 (75.1%), RESA 8 (74.9%), and the WVDE Office of Professional Preparation (Certification) (74.9%). The overall percentage of respondents who agreed/strongly agreed that the session they attended used the research-based professional development practices was 82.2%.

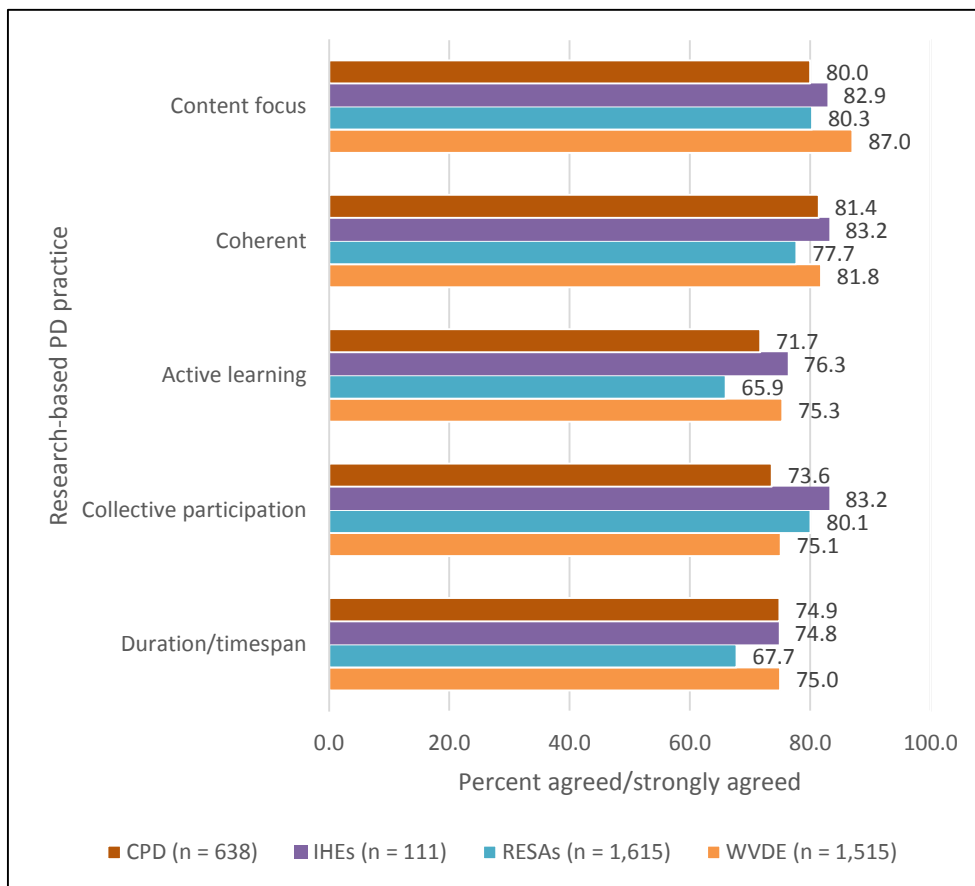


Figure 4. Percent of School-Based Respondents That Agreed or Strongly Agreed That Five Research-Based PD Practices Were Present in the Sessions They Attended by Provider Group

Data Source: School-based respondents to WVBE PD Master Plan Participant Survey 2013-2014

As mentioned earlier, the index used in the analyses described above was made up of 15 items, three for each of the five research-based professional development practices. A more granular look at the survey results for school-based respondents—that is, examining the results for each of the items in the Research-Based PD Practices Index—gives a few more clues about what each of the individual providers may want to look at in their own planning and conduct of professional learning experiences (see Table 3).

Table 3. Percent Agreed/Strongly Agreed the Session They Attended Met This Criteria by Provider

		Percent agreed/strongly agreed with this item			
		CPD (n = 638)	IHEs (n = 111)	RESAs (n = 1,612)	WVDE (n = 1,507)
Professional development included . . .					
Content focus	Focus on content knowledge	91.4	90.1	89.2	92.3
	Focus on content instruction	80.9	82.0	80.7	86.9
	Use of curriculum materials	67.7	76.6	71.0	81.9
Coherence	Alignment with school/district goals	87.0	88.3	88.7	91.0
	Alignment with own training needs	86.1	84.7	77.6	84.5
	Not a repeat of material covered before	71.2	76.6	66.7	69.8
Active learning	Discussion/review of student work	81.0	79.3	76.3	83.2
	Planning for implementation	60.8	70.3	54.7	65.9
	Practice and feedback	73.2	79.3	66.7	77.0
Collective participation	Participation with colleagues from own school	80.7	90.1	88.9	78.3
	Motivation for collaboration	68.7	79.3	74.0	72.2
	Development of common understandings	71.5	80.2	77.3	74.7
Duration & timespan	Enough contact hours	83.2	78.4	71.3	83.5
	Enough experiences during school year	67.7	71.2	60.8	73.5
	Not too much time for topic covered	73.7	74.8	71.1	68.0

Data Source: School-based respondents to WVBE PD Master Plan Participant Survey 2013-2014

The following are the highest- and lowest-scoring items in the survey among school-based respondents:

Center for Professional Development

- Highest scores—Focus on content knowledge, Alignment with school/district goals, and Alignment with own training needs
- Lowest scores—Planning for implementation, Enough experiences during school year, and Use of curriculum materials

Institutions of higher education (Fairmont University and Marshall University)

- Highest scores—Focus on content knowledge, Participation with colleagues from own school, and Alignment with school/district goals
- Lowest scores—Planning for implementation, Enough experiences during school year, and Right amount of time for topic

Regional education service agencies

- Highest scores—Focus on content knowledge, Participation with colleagues from own school/district, and Alignment with school/district goals.
- Lowest scores—Planning for implementation, Enough experiences during the school year, and Did not repeat material seen before

West Virginia Department of Education

- Highest scores—Focus on content knowledge, Alignment with school district goals, and Focus on content instruction
- Lowest scores—Planning for implementation, Right amount of time for topic, and Did not repeat material seen before

For one of the five research-based professional development practices, duration/timespan, we also collected data from the providers. As part of their session reporting, providers indicated the duration of each session in hours and the beginning and ending dates, from which we were able to ascertain the timespan in days. As mentioned earlier, research has shown that at least 30 hours of professional development are needed to affect teacher practice and improve student learning. Additionally, when professional learning takes place over an extended period of time, there are more opportunities for participants to practice new skills, and follow-up with trainers and fellow participants as they encounter new challenges.

Looking first at duration, the largest portion (37.1%) of the participants attended technical training lasting a half day up to 2 days; the second most common duration category (27.6%) was informational sessions, lasting up to 4 hours. Only about 18% of attendees were in sessions lasting the recommended 30 hours or more.

The different provider groups varied considerably. About 30% of attendees at CPD-led sessions and about 27% at WVDE-led sessions received 30 or more contact hours. Less than 1 percent of attendees at RESA-led sessions received that number of

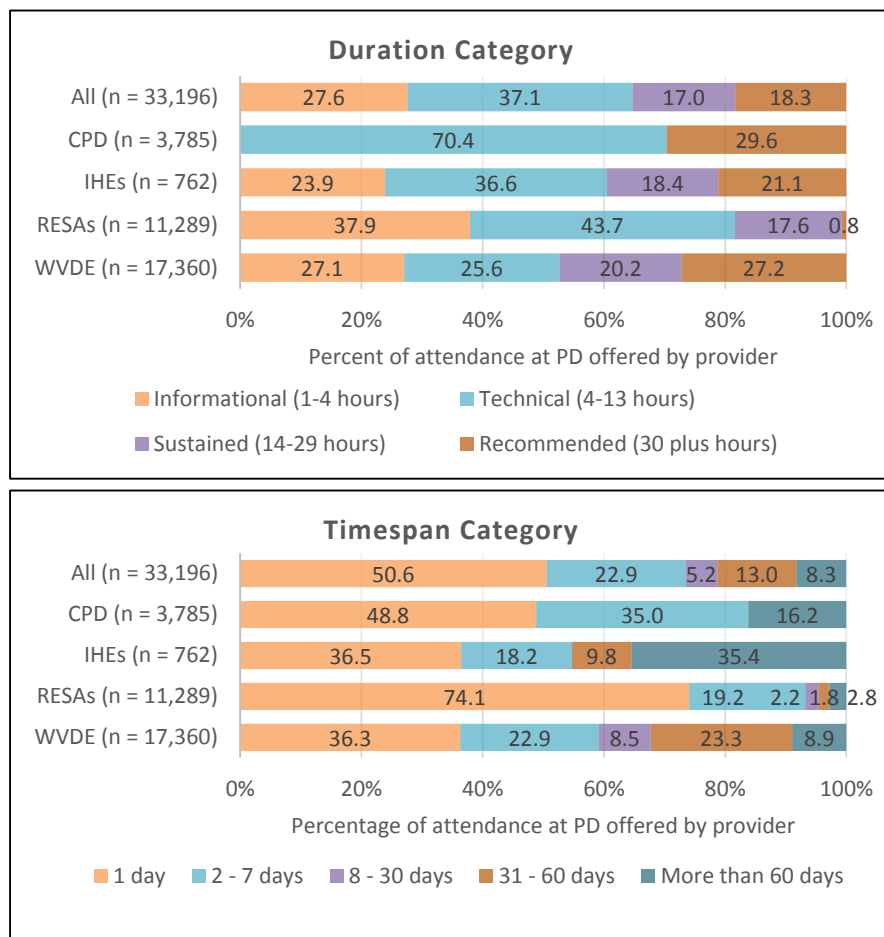


Figure 5. Distribution of Attendees Across Duration and Timespan Categories by Provider Group

Data Source: 2013-2014 PD Master Plan Session Report database

contact hours, which serves to confirm the comparatively low ratings given to RESAs by respondents to the participant survey for duration and timespan (see Figure 4, page 16 and Table 3, page 17). There was tremendous variation among RESAs, however. For example, about 80% of attendees in RESA 5 sessions and more than half of those in RESA 6 sessions received 14 or

more contact hours. There was equal variation among WVDE providers. Nearly 80% of attendees at WVDE Office of Instructional Technology received the recommended level of at least 30 hours of training, while nearly all (92%) of the attendees at sessions provided by the Office of Institutional Education Programs received 4 or fewer contact hours. For results by individual provider, see Figure A 2 (page 43).

Turning now to timespan, measured here in the number of days that elapsed between the beginning date and the ending date of sessions, there is again considerable variation (Figure 5, page 18). Overall, slightly more than half of all participants attended sessions that began and ended on the same day. Institutions of higher education tended to have the greatest attendance at sessions with longer timespans, with about 45% of their participants attending sessions taking place over at least a calendar month including more than a third attending sessions that spanned more than 60 days. About three quarters of RESA participants attended training that began and ended on the same day. Among RESAs, RESAs 5 and 6 had training with the longest timespans. More than 80% of RESA 5 attendees and more than 70% of those for RESA 6 were engaged in training that spanned at least 2 days; both RESAs had at least some participants who were engaged in training that spanned more than 60 days. All of the training offered by two WVDE offices (Office of Federal Programs and Office of Institutional Education Programs) began and ended the same day. On the other hand, nearly 80% of attendees in the Office of Instructional Technology were engaged in training that spanned at least 31 days.

Efficiency

EQ5. To what extent did providers collaborate in the delivery of professional development?

One of the purposes of the PD Master Plan is to increase the efficiency of the statewide system of professional development by reducing duplication of effort. We studied the issue of efficiency by looking at the number of collaborative partnerships providers in the PD Master Plan engaged in to conduct their sessions, assuming that collaboration is an antidote to siloed, independent offerings. In this analysis we focused only on collaborations with other providers in the PD Master Plan. Partnerships with vendors, consultants, counties, and other state agencies are not included in this analysis.

Figure 6 shows, on average, the number of collaborators state providers had for each of their sessions. The providers who exercised the greatest degree of collaboration were located in the Department of Education with RESAs coming in second. Looking at individual providers, the top six were in the WVDE. Top collaborators were the Offices of Early Learning, Special Programs, Instructional Technology, Professional Preparation, Assessment and Accountability, and Institutional Education Programs. A major provider of professional development, the Center for Professional Development worked almost completely independently of other providers according to their session reports. Figure 7 provides another look at the nature of the collaborations for each provider group by showing with which other providers each group collaborated most frequently. RESAs and WVDE offices were the most prevalent collaborators with each other.

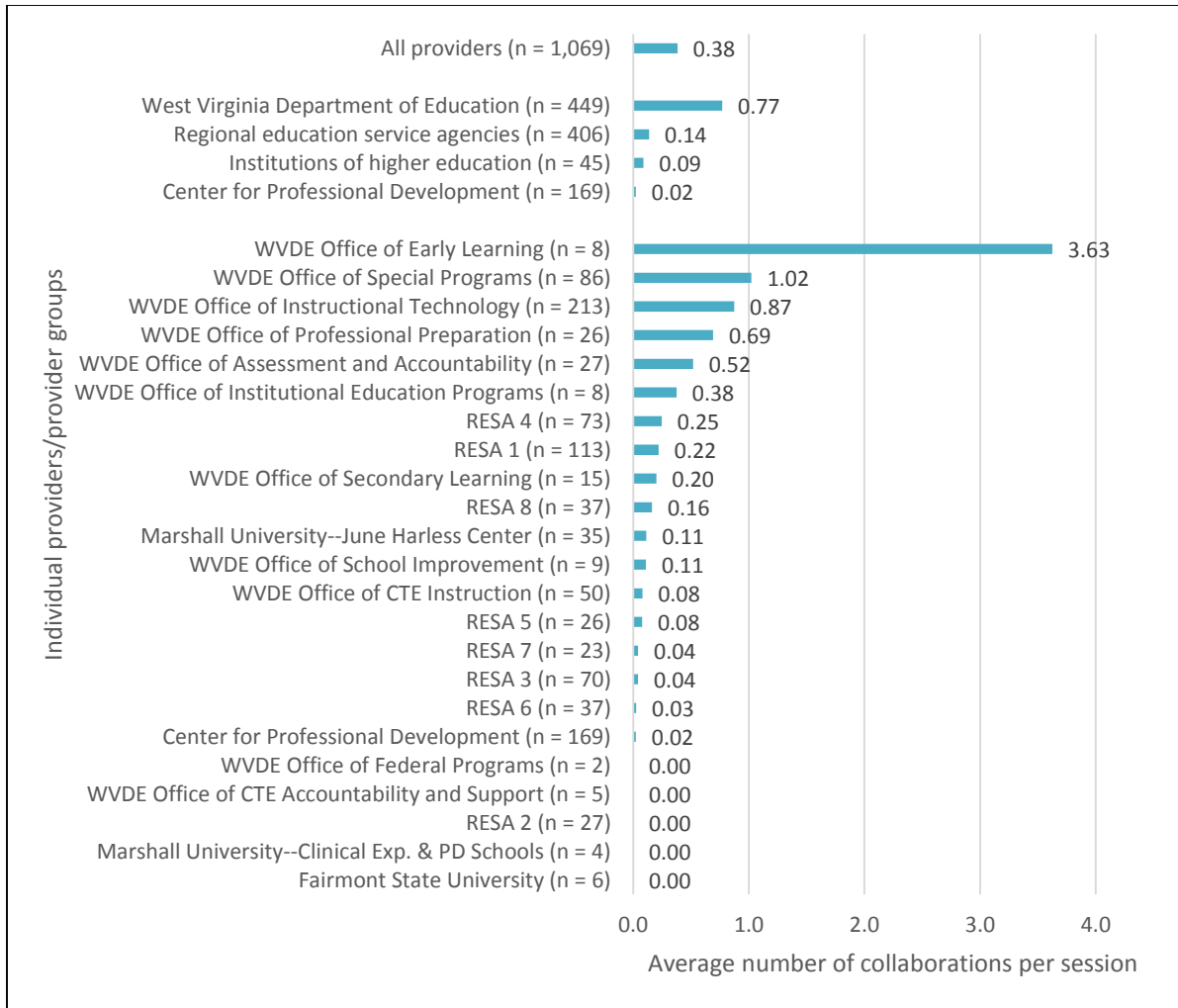


Figure 6. Average Number of Collaborations per Session by Provider

This graph shows the overall rate of collaboration per session (top bar), the rates for each of the provider groups (next four bars down), and the rates for each individual provider (remaining bars). Data source: 2013-2014 PD Master Plan Session Report database

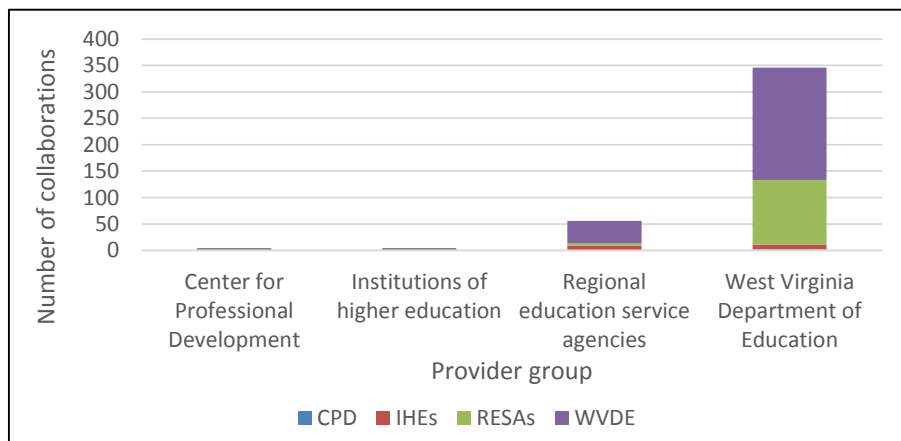


Figure 7. Provider Group Collaborations

2013-2014 PD Master Plan Session Report database

Impact

Impact will be examined by addressing the final two evaluation questions related to coverage of board goals and participants' estimation of how their own knowledge, practice, and attitudes/beliefs were affected by the professional development session we asked them to respond to.

EQ6. How well did providers' offerings address the WVBE's 2013-2014 Goals for Professional Learning?

We will examine two dimensions to this question—how well the goals were covered by the providers, and participants' views about how helpful the professional development was in meeting the Board's goals.

Proportion of PD offerings targeting each of the goals overall

About 80% of sessions (n = 858) were focused on Goal 2 with 73% of attendees (n = 24,233). Goal 2 sessions were among the longest in duration, second only to sessions focused on Goal 1. By comparison, sessions focused on Goals 3 and 4 had an average duration of less than half that of Goals 1 and 2 (Table 4).

The longer average duration for Goal 1 sessions was attributable to the 15 sessions offered by the WVDE Office of Instructional Technology, which were attended by more than 1,200 individuals and had 45 contact hours each. The sessions were offered to help attendees obtain credentials needed to serve in the state's prekindergarten classrooms.

Table 4. Coverage of Board Goals for Professional Learning

Goal		Sessions (n)	Attendance (n)	Duration (mean hours)
	All sessions	1,069	33,194	13.6
Professional development for the 2013-2014 school year				
1.	Increase the knowledge and skills of all pre-K educators to deliver a comprehensive pre-K–third grade approach to early childhood education that includes a balanced approach to early literacy.	50	1,966	17.5
2.	Increase deep content knowledge and proficiency in designing and delivering standards-driven instruction and assessments for all preK-12 West Virginia educators.	858	24,233	14.7
3.	Improve leadership competencies for principals and assistant principals in order to support high quality teaching and learning.	114	4,794	7.0
4.	Support the full implementation of the revised educator evaluation system.	47	2,201	6.3

Data source: 2013-2014 PD Master Plan Session Report database

The relatively high average duration for Goal 2-focused sessions was attributable to six providers, all of which had mean durations above the grand mean shown in Table 4. In descending order by average duration they were WVDE Office of Instructional Technology (28.9 hours, 4,102 attendees; RESA 5 (21.8 hours, 912 attendees); Marshall University June Harless Center (19.9 hours, 460 attendees); WVDE Office of Early Learning (17.0 hours, 270 attendees); Center for Professional Development (16.6 hours, 2,268 attendees); and RESA 6 (14.8 hour, 845 attendees).

Participant reports of PD’s helpfulness in meeting board goals

Participants’ were asked in four items if the session they had attended was helpful in meeting each of the four Board Goals for Professional Learning. Response options included 1 (not applicable), 2 (strongly disagree), 3 (disagree), 4 (agree), and 5 (strongly agree). The data in Figure 8 reflect only the responses of participants in sessions providers indicated were aligned with particular goals. So for example, if a participant attended a session that a provider said was aligned with Goal 1, only his/her response to the Goal 1 item was included in the analysis and his/her responses to the items for Goals 2-4 were ignored. Although ordinarily we would not include responses of “not applicable” when calculating percentages, we thought such a response to a session that providers’ considered aligned to a particular goal was a form of nonagreement that the session had been helpful in moving them toward that goal. Figure 8 shows a high level of general agreement—at least 75%—that the sessions they attended had been helpful.

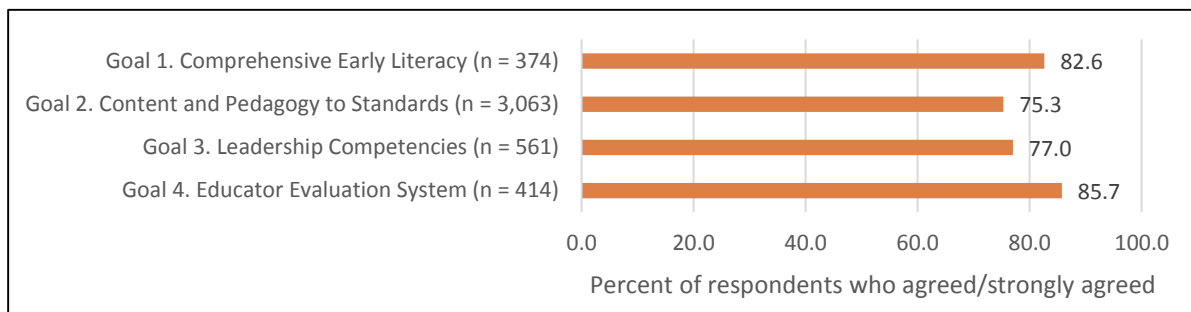


Figure 8. Percent of Respondents Who Agreed or Disagreed That the Session Was Helpful in Meeting the Targeted Board Goal

EQ7. What was the impact of the professional development offered through the 2013-2014 PD Master Plan on educators’ knowledge, practice, and attitudes?

We used a retrospective pretest/posttest design to assess the extent to which survey respondents perceived a change in their own knowledge, behaviors/practice, and beliefs/attitudes as a result of participating in professional development. The survey contained three pairs of items that asked respondents to use a 4-point Likert-type scale (0 [not at all], 1 [to a small extent], 2 [to a moderate extent], 3 [to a great extent]), to rate the extent to which they agreed with statements about themselves both before and after having participated in the professional development session they attended. A fifth response category was included, but only used to allow respondents to indicate the item was not applicable to them. These responses were not used when calculating mean scores.

Pair 1. Before participating in this PD, to what extent were you knowledgeable about the topic it covered?

After participating in this PD, to what extent are you knowledgeable about the topic it covered?

Pair 2. Before participating in this PD, to what extent did you practice behaviors or skills it taught?

After participating in this PD, to what extent do you practice behaviors or skills it taught?

Pair 3. Before participating in this PD, to what extent did you hold attitudes/beliefs it encouraged?

After participating in this PD, to what extent do you hold attitudes/beliefs it encouraged?

Aggregated pre-session scores averaged between 1.7 and 2.0, indicating that participants, overall, thought they had a moderate or slightly less than moderate level of knowledge, skill, and attitude/belief prior to engaging in the session. They assessed themselves just below the midpoint between the moderate and great levels after the session, indicating that participants, overall, thought they had grown professionally as a result of the experience.

Table 5. Overall Average Self-Scores for Extent of Knowledge, Practice, and Beliefs Before and After Professional Development

	Average score	
	Before PD	After PD
Knowledge about topic (n = 4,523)	1.7	2.3
Practice of behaviors or skills (n = 4,312)	1.8	2.3
Held attitudes and beliefs (n = 4,362)	2.0	2.4

Note: 0 = not at all, 1 = to a small extent, 2 = to a moderate extent, 3 = to a great extent; responses marked *not applicable* were excluded from the analysis.

Source: WVBE PD Master Plan Participant Survey 2013-2014

To test the statistical significance of these findings, we ran a series of paired-samples *t* tests using respondents' pre- and post-ratings. When statistically significant differences were found (i.e., $p < .05$), it is reasonable to say that the differences observed between participants' pre- and posttest results are not likely due to chance. That is, there is some systematic reason underlying the difference. This analysis, however, does not allow one to infer a cause for the difference. It merely describes the presence of a significant difference.

Significance testing revealed that the results were significant at the $p < .05$ level for all but three of the 78 tests we ran—and the great majority of those tests were statistically significant at the $p < .001$ level (see Table A 9, page 46 in Appendix B).

One limitation of significance testing is that it tells us very little about the magnitude of any observed differences. We detect a difference, but cannot tell from the *t* test if the difference is meaningful in a practical sense. Calculating an effect size is one way to explain the magnitude of any statistically significant differences. In this study, we used Cohen’s *d* as a measure of effect size. This statistic is often used in simple retrospective pretest/posttest designs, although its interpretation is often debated in social sciences (see the Limitations of the Study section, page 26, for more about this debate). The guidelines we used for interpreting the meaning of the effect sizes in this study are found in Table 6.

Table 6. Interpretation of Effect Size Estimates Used in this Study

Value for Cohen’s <i>d</i>	Interpretation
Less than .4	Small effect
.4 to .7	Moderate effect
.8 or 1.1	Large effect
1.2 and above	Very large effect

Aggregating all results, respondents perceived a large impact on the extent of their knowledge as a result of attending the session, with moderate effects on their practice and attitudes/beliefs (Figure 9). This pattern held across

the provider groups with a couple of exceptions: Institutions of higher education saw *very large* effects for knowledge compared with the large effects seen by other groups, and the Center for Professional Development saw large effects for practices compared with the moderate effects for the other groups.

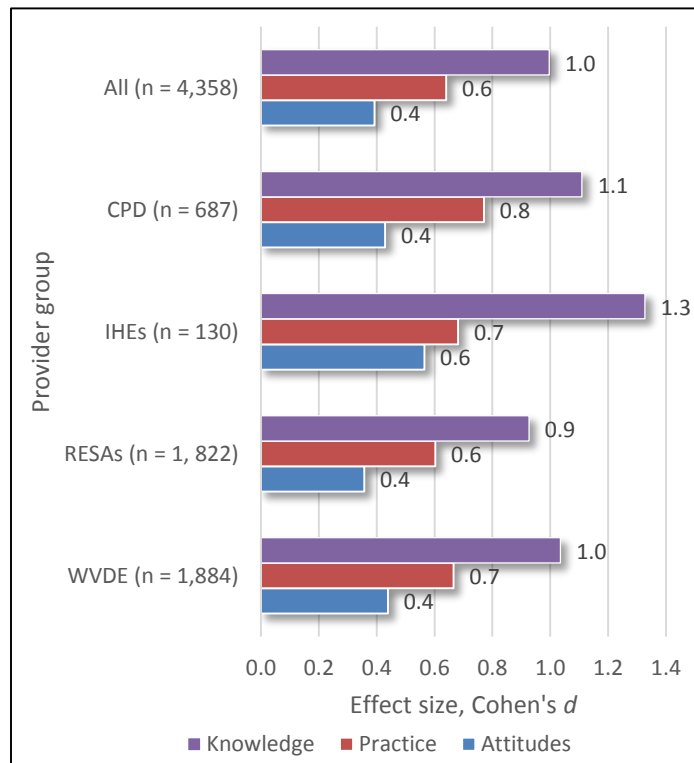


Figure 9. Reported Impact of PD on Knowledge, Practice, and Attitudes by Provider Group

See Table 6 for interpretation of these effect sizes.

Data source: WVBE PD Master Plan Participant Survey 2013-2014

Figure 10 displays the range of effects for individual providers, which generally follow the pattern described above, with larger effects for knowledge, more moderate effects for practice, and the smallest effects for attitudes and beliefs. Some notable results included the following:

- The Center for Professional Development saw large effects on practice.
- Among the institutions of higher education, participants in professional development provided by Marshall University reported the greatest growth compared with Fairmont University.
- Among RESAs, RESA 6 was the only one that registered very large effects on knowledge and large effects on practice.

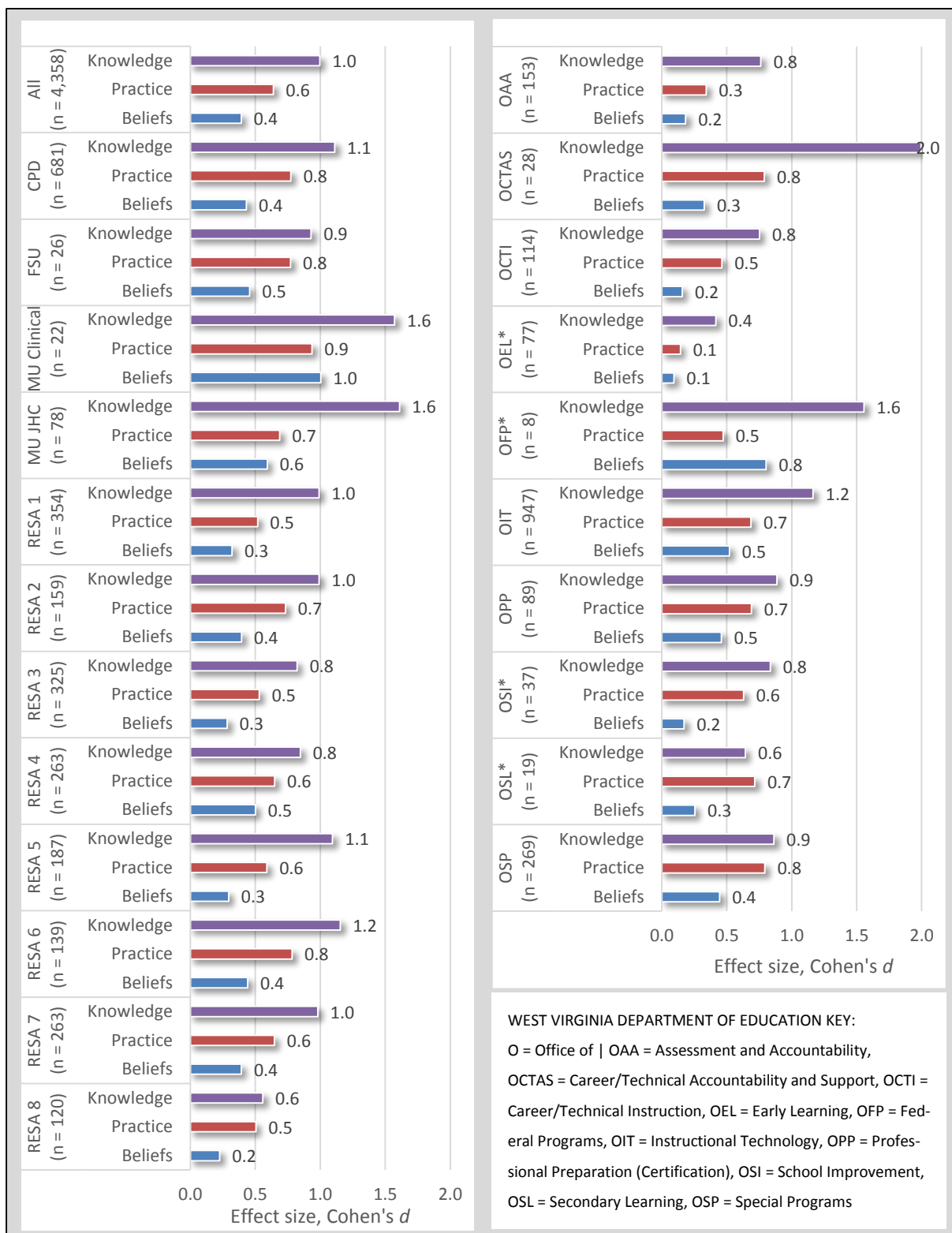


Figure 10. Perceived Impact of Professional Development (Retrospective Pre/Post): Effect Size by Provider
 The following values are generally assigned to effect sizes: Less than 0.4 = small effect; 0.4 to 0.7 = moderate effect, 0.8 to 1.1 = large effect, and 1.2 and above = very large effects.

* T test results for impacts on beliefs (only) were not statistically significant.

- Among WVDE offices, Career and Technical Accountability and Support, Federal Programs, and Instructional Technology all saw very large effects on knowledge. Career and Technical Accountability and Support also saw large effects on practice, as did Special Programs.

Discussion

The PD Master Plan included more professional development sessions than ever before, giving us an opportunity to measure the effectiveness, efficiency, and impact of professional development by major providers (2014-2015 includes even more). Major findings for 2013-2014 include the following, arranged here by effectiveness, efficiency, and impact:

Effectiveness of the Master Plan

- The PD Master Plan included more topics in 2013-2014 (479) than the previous year (408) and at 33,196 participants, an increase of about a thousand educators in attendance.
- Regarding the effectiveness of providers in meeting the Board Standards for Professional Learning, overall, the standards that providers most often believed they had met were Standard 7 (“Aligns its outcomes with educator performance and student curriculum standards”) and Standard 5 (“Integrates theories, research, and models of human learning into learning designs to achieve its intended outcomes”). The two standards providers least often reported meeting were Standard 4 (“Uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning”) and Standard 6 (“Applies research on change and sustains support for implementation of professional learning for long-term change”).
- Regarding the extent to which providers’ offerings reflected five research-based professional development practices, overall, there was the greatest agreement that the professional development had focused on *content and content pedagogy*. *Active learning* scored lowest; only slightly higher was respondents’ estimation that the session had provided sufficient *duration and timespan* to allow them to apply what they were learning. Participants were largely in agreement that the professional development had been well aligned (*coherent*) with their own needs and those of the school and district.
- Providers’ session reports seemed to confirm the findings about duration and timespan above. Of the 33,000 attendees reported by providers, about 5,700 educators participated in professional development lasting at least 30 hours; another 5,400 had from 14 to 29 contact hours—durations shown by research to be the minimum needed to change teacher practice and impact student learning. The remaining two-thirds of participants attended sessions ranging from 1 to 13 hours.

Efficiency of the Master Plan

- The Legislature's call for decentralization of professional development seemed to be reflected in the trends for the four major providers in the Plan, with the WVDE decreasing their number of offerings and participants from the previous year, while the RESAs' slate of offerings rose dramatically, as did their participant counts. CPD continued its trend upward for both topics and participants, while IHES remained stable. Still, the WVDE continued to report the greatest number of both sessions held and participants in attendance.
- RESAs and WVDE offices operated very collaboratively, partnering with each other and IHEs. According to CPD session reports, they worked almost completely independently of other providers. It should be noted, however, that CPD, like the RESAs, seeks input from the WVDE and others when setting its slate of offerings.

Impact of the Master Plan

- While all four of the Board's Goals for Professional Learning received coverage, Goal 2 ("Increase deep content knowledge and proficiency in designing and delivering standards-driven instruction and assessments") was the focus of about 80% of sessions (n = 858) with 73% of attendees (n = 24,233).
- The participant surveys showed a high level of general agreement—at least 75%—that the sessions they attended had been helpful in meeting the Board goal with which it was aligned.
- According to self-reports, the professional development had large effects on educators' knowledge of the PD topic, and moderate effects on their practice and attitudes/beliefs.

Limitations of the Study

The response rate for the participant survey, 50.5%, was lower than in previous years, when rates tended to range from 63% to 66%. This result may have been due to at least three factors: (a) the schedule of the survey, which ran at least a month later than previous years (in June rather than May) due to the change in the reporting year called for in the PD Master Plan and to the lateness of some of the providers in submitting the session reports; (b) competition with two other statewide surveys about professional development, also from the Office of Research, that ran in close proximity to the PD Master Plan survey; (c) weariness with the PD Master Plan survey itself.

The participant survey conducted in November-December 2013 and May-June 2014 asked respondents to recall PD sessions they had participated in at some point in the past. In some cases, the sessions had taken place up to five months prior to the survey. For this reason, there is a possibility of temporal bias in survey participants' responses.

The use of a retrospective pretest/posttest methodology to assess changes in knowledge, behavior and skills, and attitudes and beliefs poses some concerns. We used this

methodology primarily because some researchers have argued that a phenomenon called *response shift bias* can occur when conducting traditional pretest/posttest designs. Response-shift bias “occurs when a participant uses a different internal understanding of the construct being measured to complete the pretest and posttest” (Moore & Tananis, 2009, p. 190). Consider this in context of professional development. Some respondents begin their involvement in professional development with a misconception that they are already well-versed in the content to be covered. When given a pretest, they rate their own knowledge, behavior and skills, and attitudes and beliefs very positively. However, over the course of the professional development, as they develop a deeper understanding of the content being covered, they realize they did not know as much as they originally thought. As such, when presented with the posttest, their frame of reference has shifted and they could potentially rate their knowledge, behavior and skills, and attitudes and beliefs lower than they did on the pretest. This can lead to problems in analyzing the impact of the professional development. For this reason, some researchers advocate for using retrospective pretest/posttest designs as we did in this study.

Despite this strength of the retrospective pretest/posttest design, a recent research study conducted by Nimon, Zigarmi, and Allen (2011) found that using traditional pretest/posttest designs leads to less biased estimates of program effectiveness. The authors present a compelling case that presenting both pre- and posttest items simultaneously on a single survey is among the most biased design options available to researchers and can significantly inflate effect size estimates. The authors recommend traditional pretest/posttest designs when possible and advocate for the implementation of a separate retrospective pretest to allow researchers to determine the presence of any response-shift bias. This design option, despite its strength, was not feasible in this study due to a mismatch between the scale of professional development offerings in the state and available evaluation staffing resources. Therefore, we recommend cautious interpretation of our own estimates of effect size, as they may be somewhat inflated.

Recommendations

Based on these findings, we make the following recommendations.

In keeping with the Board Standards for Professional Learning,

- Increase the use of a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning, and
- Increase the application of research on change and sustain support for implementation of professional learning for long-term change.

With regard to the use of research-based PD practices,

- Increase the use of active learning during professional development sessions, and
- Provide sufficient duration (30 or more hours) and timespan (weeks or months) to allow participants opportunities to apply what they are learning.

Based on factors present in the larger context of professional development in the state, we recommend that the West Virginia Board of Education and Department of Education

- Bring the last of the public IHEs with teacher education programs into the PD Master Plan (two participated in 2013-2014; five are participating in 2014-2015).
- Promote the Board's Standards for Professional Learning at the school and district level, so they will better guide educators' planning.
- Consider adoption of a model or standard for professional development providers that aligns with and supports local learning communities working to adopt the Board's Standards for Professional Learning.
- Revisit the purposes and possible uses of the PD Master Plan to guide professional development—aligning it to the Transforming Professional Development Initiative.
- Consider ways to put the evaluation of the PD Master Plan to better use—reshaping the evaluation and its purposes as the plan itself is reshaped.

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Appendix A. Research-Based PD Practices Index

Research-Based PD Practices Index						
Please indicate to what extent you agree or disagree with the following statements about the professional development.						
	The professional development . . .	Not applicable	Strongly disagree	Disagree	Agree	Strongly agree
1.	Deepened my knowledge of the content area it covered.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strengthened my instructional approaches for teaching the content area it covered.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Used curriculum materials I will be using with my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Was relevant to reaching my school or district's goals for student learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Was challenging and helped me develop my skills to a new level.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Spent too much time repeating concepts I have learned before.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Included opportunities for discussions, reviewing student work, and/or written exercises.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Included valuable time to plan for implementation in my classroom, school, or district.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Allowed me opportunities to practice what I was learning and receive constructive feedback.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Included colleagues in my content area, grade, or specialization from my school or district.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Motivated my colleagues and me to collaborate more in our shared work with students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Helped my colleagues and me arrive at a common understanding and approach to instruction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	Had enough contact hours to help me learn the content and skills it encouraged.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Offered enough experiences during the school year for me to develop and successfully apply new skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Required more of my time than I think was needed for this topic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Subscales include <ol style="list-style-type: none"> 1. Content and content pedagogy 2. Coherence 3. Active learning 4. Collective participation 5. Duration and time span 						

Appendix B. Additional Data Tables and Figures

Table A 1. Participant Survey Response Rates, Confidence Levels, and Confidence Intervals by Provider Group and Provider

Provider	Sampling frame of unique email addresses	Random sample of unique email addresses	Usable responses received	Response rate	95% confidence level, ± % (CI)	90% confidence level, ± % (CI)
Total	12,860	9,416	4,758	50.5	1	1
Provider groups						
Center for Professional Development	2,408	1,251	723	57.8	3	3
Institutions of higher education	319	307	139	45.3	6	5
Regional education service agencies	5,505	4,126	1,916	46.4	2	2
West Virginia Department of Education	4,628	3,732	1,980	53.1	2	1
Individual provider						
Center for Professional Development	2,408	1,251	723	57.8	3	3
Fairmont State University	63	63	26	41.3	19	13
Marshall University	256	244	113	46.3	7	6
RESA 1	1,089	841	379	45.1	4	3
RESA 2	382	346	167	48.3	6	5
RESA 3	1,374	841	347	41.3	5	4
RESA 4	827	578	280	48.4	5	4
RESA 5	441	370	196	53.0	5	4
RESA 6	465	418	148	35.4	7	6
RESA 7	683	496	276	55.6	5	4
RESA 8	244	236	123	52.1	6	5
WVDE - Office of Assessment and Accountability	402	319	162	50.8	6	5
WVDE - Office of Career and Technical Accountability and Support	72	72	29	40.3	14	12
WVDE - Office of Career and Technical Instruction	348	266	130	48.9	7	6
WVDE - Office of Early Learning	190	175	84	48.0	8	7
WVDE - Office of Federal Programs	11	11	9	81.8	15	12
WVDE - Office of Instructional Technology	2,564	1,924	993	51.6	2	2
WVDE - Office of Professional Preparation (Certification)	224	206	98	47.6	7	6
WVDE - Office of School Improvement	95	95	40	42.1	12	10
WVDE - Office of Secondary Learning	36	36	19	52.8	16	13
WVDE - Office of Special Programs	686	628	416	66.2	3	3

Data Source: 2013-2014 PD Master Plan Session Report database

Table A 2. Number of Sessions in the PD Master Plan, and Number and Percent Delivered by Provider Group and Individual Provider

Provider in PD Master Plan	Sessions in PD Master Plan	Sessions reported as delivered	
		Number	Percent
Total	479	384	80.2
Provider groups			
Center for Professional Development	65	61	93.8
Institutions of higher education	25	15	60.0
Regional education service agencies	156	133	85.3
West Virginia Department of Education	233	175	75.1
Individual providers			
Center for Professional Development	65	61	93.8
Fairmont State University	4	4	100.0
Marshall University - Clinical Experiences and Professional Development Schools	6	2	33.3
Marshall University - June Harless Center	15	9	60.0
RESA 1	49	34	69.4
RESA 2	9	8	88.9
RESA 3	24	20	83.3
RESA 4	12	9	75.0
RESA 5	21	21	100.0
RESA 6	23	23	100.0
RESA 7	16	16	100.0
RESA 8	2	2	100.0
WVDE - Office of Assessment and Accountability	12	11	91.7
WVDE - Office of Career and Technical Accountability and Support	9	4	44.4
WVDE - Office of Career and Technical Instruction	60	45	75.0
WVDE - Office of Early Learning	7	7	100.0
WVDE - Office of Federal Programs	1	1	100.0
WVDE - Office of Institutional Education Programs	12	8	66.7
WVDE - Office of Instructional Technology	81	63	77.8
WVDE - Office of Professional Preparation (Certification)	13	9	69.2
WVDE - Office of School Improvement	6	6	100.0
WVDE - Office of Secondary Learning	21	10	47.6
WVDE - Office of Special Programs	11	11	100.0

Data Source: 2013-2014 PD Master Plan Session Report database

Table A 3. Provider Performance in Submitting E-mail Addresses for Participants in Professional Development Sessions They Conducted

Provider	Attendance reported all three data collection periods	Attendance reported during first two data collection periods (email addresses required)	Number of participant email addresses provided	Percentage of reported participants for whom email addresses were supplied
TOTAL	33,196	27,271	22,326	67.8
Provider groups				
Center for Professional Development	3,785	3,785	3,718	98.2
Institutions of higher education	762	760	552	72.6
Regional education service agencies	11,289	9,998	9,376	93.8
West Virginia Department of Education	17,360	12,728	8,680	68.2
Individual providers				
Center for Professional Development	3,785	3,785	3,718	98.2
Fairmont State University	172	172	160	93.0
Marshall University	590	588	392	66.7
RESA 1	2,242	1,970	1,834	93.1
RESA 2	754	683	683	100.0
RESA 3	2,380	2,048	1,966	96.0
RESA 4	1,910	1,725	1,609	93.3
RESA 5	1,024	908	807	88.9
RESA 6	1,052	1,052	923	87.7
RESA 7	1,214	1,099	1,064	96.8
RESA 8	713	513	490	95.5
WVDE Office of Assessment and Accountability	737	722	652	90.3
WVDE Office of Career and Technical Accountability and Support	447	447	101	22.6
WVDE Office of Career and Technical Instruction	1,221	1,174	1,021	87.0
WVDE Office of Early Learning	1,238	504	503	99.8
WVDE Office of Federal Programs	28	14	14	100.0
WVDE Office of Institutional Education Programs	273	273	0	0.0
WVDE Office of Instructional Technology	5,304	4,460	4,146	93.0
WVDE Office of Professional Preparation (Certification)	1,419	1,384	376	27.2
WVDE Office of School Improvement	926	896	512	57.1
WVDE Office of Secondary Learning	1,008	956	42	4.4
WVDE Office of Special Programs	4,759	1,898	1,313	69.2

Data Source: 2013-2014 PD Master Plan Session Report database

Table A 4. Reasons Given for Not Implementing Some Sessions in the PD Master Plan by Provider

Organization/Reasons not implemented	Number sessions implemented	Number not implemented/ not reported
Center for Professional Development Board/department priorities changed (1) Other: (a) Session began and will continue into 2014-2015; (b) budget constraints (2)	61	3
Marshall University - Clinical Experiences and Professional Development Schools Other: Staff member with this expertise left (1) Session was postponed to 2014-2015 (1) There were insufficient registrations (1) Topic was combined with another (1)	2	4
Marshall University - June Harless Center Topic was not requested (6)	9	6
RESA 1 Session was cancelled due to weather/water crisis (1) Session was postponed to 2014-2015 (1) There were insufficient registrations (2) Topic was combined with another (8) Topic was not requested (3)	34	15
RESA 2 No explanation provided (1)	8	1
RESA 3 No explanation provided (3) Session was postponed to 2014-2015 (2)	20	5
RESA 4 Topic was not requested (1) Session was delivered but not reported (1) Topic was combined with another (1)	10	2
RESA 5 Board/department priorities changed (1)	20	1
WVDE - Office of Career and Technical Accountability and Support Other: (a) training handled on individual basis with schools through meetings; (b) staff member with this expertise retired. (2) Topic was combined with another (3)	4	5
WVDE - Office of Career and Technical Instruction Other: Partner's responsibility as lead (1) No explanation provided (1) Session was delivered but not reported (7) Session was postponed to 2014-2015 (1) There were insufficient registrations (1) Topic was not requested (1)	48	12
WVDE - Office of Institutional Education Programs Other: Two topics delivered by another provider; one topic handled on individual basis with schools through meetings (3) Session was delivered but not reported (1)	8	4

Table continued on next page

Table A 4. Reasons Given for Not Implementing Some Sessions in the PD Master Plan by Provider

Organization/Reasons not implemented	Number sessions implemented	Number not implemented/not reported
WVDE - Office of Instructional Technology	63	18
No explanation provided (7)		
Other: Staff member with this expertise retired (1)		
Session was delivered but not reported (10)		
WVDE - Office of Professional Preparation (Certification)	9	4
Other: (a) Topic mistakenly included in plan; (b) Work is ongoing, partly accomplished through other means (2)		
Session was postponed to 2014-2015 (1)		
Topic was combined with another (1)		
WVDE - Office of Secondary Learning	10	11
Board/department priorities changed (1)		
Session was delivered but not reported (1)		
Topic was combined with another (2)		
Topic was not requested (7)		

Data Source: Agency staff response to e-mail query, September 2014.

Table A 5. Provider Explanations for Sessions Not Delivered or Not Reported

Explanation	Number
Total not delivered/not reported	93
Canceled due to unforeseen circumstances	8
<ul style="list-style-type: none"> • Board/department priorities changed (n = 3) • Budget constraints (n = 1) • Weather/water crisis (n = 1) • Staff member with this expertise left/retired (n = 3) 	
Cancelled due to lack of interest	22
<ul style="list-style-type: none"> • Topic not requested (n = 18) • Insufficient registrations (n = 4) 	
Provider reporting error	14
<ul style="list-style-type: none"> • No explanation provided (n = 12) • Mistakenly included in plan (n = 2) 	
Provided (a) on different schedule, (b) by other means or providers, (c) provided but not reported	49
<ul style="list-style-type: none"> • Session began and will continue into 2014-2015 (n = 1) • Session delivered but not reported (n = 20) • Session postponed to 2014-2015 (n = 6) • Topic delivered by another provider (n = 3) • Topic handled by other means or on individual basis (n = 3) • Topic combined with another (n = 16) 	

Data Source: Agency staff response to e-mail query, September 2014.

Table A 6. Percent of Respondents That Reported Presence or Absence of Research-Based PD Practices by Role Group

		Content and content pedagogy focus						Coherent with school/district goals and individuals' need for training						Active learning						Collective participation from own school/district						Adequate duration and timespan					
		Content knowledge		Content instruction		Used curriculum materials		Goal alignment		Aligned with training needs		Challenging, did not repeat other PD**		Discuss/review student work		Planning for implementation		Practice and feedback		Particip'n w/ colleagues from own school		Motivated collaboration		Developed common understandings		Enough contact hours		Enough experiences during school year		Not too much time for topic covered	
Role		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%		
SCHOOL-BASED RESPONDENTS																															
Principal/assistant principal	Disagree	30	5.5	32	5.9	41	7.6	25	4.6	79	14.7	156	28.8	62	11.5	163	30.1	129	23.7	31	5.7	94	17.3	70	12.9	97	17.9	111	20.4	141	26.1
	Agree	499	91.6	366	67.4	297	54.8	493	91.0	439	81.4	371	68.5	410	76.2	316	58.3	360	66.2	484	88.8	386	71.0	411	75.6	425	78.3	364	66.8	367	67.8
	NA	16	2.9	145	26.7	204	37.6	24	4.4	21	3.9	15	2.8	66	12.3	63	11.6	55	10.1	30	5.5	64	11.8	63	11.6	21	3.9	70	12.8	33	6.1
Regular education teacher	Disagree	191	8.2	210	9.0	288	12.4	139	6.0	360	15.6	588	25.4	353	15.2	760	32.8	561	24.2	253	10.9	451	19.4	385	16.6	454	19.6	585	25.3	512	22.0
	Agree	2101	90.1	2010	86.4	1833	78.9	2103	90.6	1899	82.2	1634	70.6	1857	80.1	1404	60.5	1663	71.7	1942	83.6	1689	72.7	1752	75.6	1802	77.9	1538	66.6	1705	73.4
	NA	39	1.7	107	4.6	203	8.7	80	3.4	51	2.2	94	4.1	107	4.6	155	6.7	95	4.1	128	5.5	184	7.9	181	7.8	58	2.5	187	8.1	105	4.5
Special education teacher	Disagree	29	5.4	41	7.6	58	10.7	43	8.0	63	11.7	155	28.7	62	11.5	152	28.1	94	17.5	63	11.7	87	16.1	72	13.3	82	15.3	108	20.1	139	25.9
	Agree	500	92.6	474	87.9	436	80.7	476	88.1	463	86.1	361	66.9	454	84.1	348	64.3	422	78.4	445	82.4	400	73.9	413	76.5	440	82.1	384	71.4	368	68.5
	NA	11	2.0	24	4.5	46	8.5	21	3.9	12	2.2	24	4.4	24	4.4	41	7.6	22	4.1	32	5.9	54	10.0	55	10.2	14	2.6	46	8.6	30	5.6
Library media specialist	Disagree	2	4.7	5	11.9	5	11.6	2	4.8	7	16.3	12	27.9	7	16.3	13	31.0	10	23.3	10	23.3	11	25.6	6	14.0	12	27.9	12	27.9	10	23.3
	Agree	39	90.7	34	81.0	34	79.1	39	92.9	35	81.4	30	69.8	32	74.4	20	47.6	30	69.8	31	72.1	30	69.8	36	83.7	31	72.1	27	62.8	29	67.4
	NA	2	4.7	3	7.1	4	9.3	1	2.4	1	2.3	1	2.3	4	9.3	9	21.4	3	7.0	2	4.7	2	4.7	1	2.3	0	0.0	4	9.3	4	9.3
Instruct'l support teacher	Disagree	10	5.6	19	10.7	27	15.3	8	4.5	34	19.4	46	26.0	29	16.5	53	29.9	39	22.3	13	7.3	27	15.3	28	15.9	35	19.9	50	28.4	30	16.9
	Agree	163	92.1	147	83.1	123	69.9	162	92.0	135	77.1	125	70.6	137	77.8	108	61.0	124	70.9	151	85.3	140	79.1	134	76.1	131	74.4	114	64.8	140	79.1
	NA	4	2.3	11	6.2	26	14.8	6	3.4	6	3.4	6	3.4	10	5.7	16	9.0	12	6.9	13	7.3	10	5.6	14	8.0	10	5.7	12	6.8	7	4.0
Paraprofessional/aide	Disagree	11	4.7	24	10.3	29	12.4	22	9.4	25	10.7	68	29.2	16	6.9	57	24.5	25	10.6	34	14.6	41	17.5	34	14.7	21	9.0	35	15.1	97	41.6
	Agree	219	94.4	195	84.1	182	78.1	192	82.4	205	88.0	154	66.1	208	89.3	151	64.8	200	85.1	185	79.4	170	72.6	179	77.2	206	88.4	179	77.2	122	52.4
	NA	2	0.9	13	5.6	22	9.4	19	8.2	3	1.3	11	4.7	9	3.9	25	10.7	10	4.3	14	6.0	23	9.8	19	8.2	6	2.6	18	7.8	14	6.0
NON-SCHOOL-BASED AND OTHER RESPONDENTS																															
District office staff	Disagree	15	4.7	14	4.4	16	5.0	12	3.8	43	13.6	71	22.5	30	9.4	66	21.0	69	21.9	13	4.1	32	10.1	23	7.3	51	16.2	47	14.9	58	18.4
	Agree	296	91.9	191	59.9	137	42.9	279	87.5	249	78.8	222	70.5	235	73.9	177	56.2	177	56.2	267	84.5	218	68.8	242	76.3	233	74.2	185	58.5	228	72.2
	NA	11	3.4	114	35.7	166	52.0	28	8.8	24	7.6	22	7.0	53	16.7	72	22.9	69	21.9	36	11.4	67	21.1	52	16.4	30	9.6	84	26.6	30	9.5
RESA staff	Disagree	1	2.5	2	5.0	3	7.7	2	5.0	6	15.0	10	25.0	5	12.8	5	12.8	6	15.4	4	10.3	2	5.1	2	5.1	2	5.1	5	13.5	7	17.9
	Agree	38	95.0	26	65.0	19	48.7	31	77.5	34	85.0	30	75.0	28	71.8	26	66.7	27	69.2	27	69.2	27	69.2	29	74.4	33	84.6	23	62.2	30	76.9
	NA	1	2.5	12	30.0	17	43.6	7	17.5	0	0.0	0.0	0.0	6	15.4	8	20.5	6	15.4	8	20.5	10	25.6	8	20.5	4	10.3	9	24.3	2	5.1
Other	Disagree	23	4.5	32	6.3	45	8.9	27	5.4	70	13.9	94	18.5	66	12.9	126	24.8	88	17.3	53	10.5	72	14.1	61	12.0	77	15.2	93	18.3	84	16.5
	Agree	460	90.6	380	74.7	324	63.9	410	81.5	396	78.6	369	72.6	391	76.7	287	56.4	336	66.0	393	77.5	350	68.8	360	70.7	391	77.0	299	58.9	381	75.0
	NA	25	4.9	97	19.1	138	27.2	66	13.1	38	7.5	45	8.9	53	10.4	96	18.9	85	16.7	61	12.0	87	17.1	88	17.3	40	7.9	116	22.8	43	8.5

Notes: Highlighted cells indicate that 15% or more of respondents considered the research-based PD practice "not applicable."

*Disagree = disagree and strongly disagree; Agree = Agree and strongly disagree; NA = not applicable. Data source: WVBE PD Master Plan Participant Survey 2013-2014

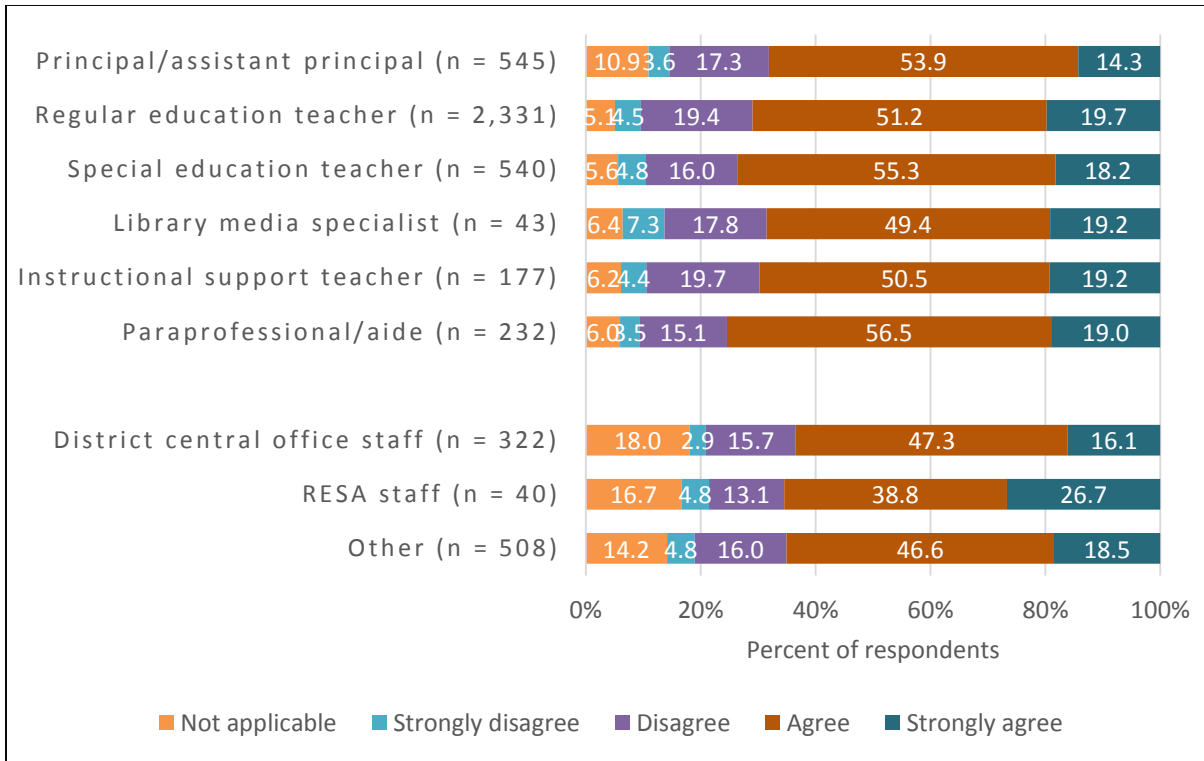


Figure A 1. Average Rate of Agreement or Disagreement That Professional Development Attended Adhered to Research-Based Practices, by Role Group.

The top six bars represent role groups based in schools, while the lower three bars are non-school and "other" role groups. The two major groups differed in how they rated the overall alignment of the professional development each received with research-based PD practices--measures that tend to be more pertinent for teachers and others working directly with students. Paraprofessionals, special education teachers, regular education teachers (in descending order) were most in agreement that the session they attended had the five qualities of research-based practice. Data Source: School-based respondents to WVBE PD Master Plan Participant Survey 2013-2014

Table A 7. Percent of School-Based Respondents That Agreed or Strongly Agreed Five Research-Based PD Practices Were Present in the Sessions They Attended, by Individual Provider

Provider	Average percent of agree/strongly agreed					
	All research-based PD practices	Content focus	Coherence	Active learning	Collective participation	Duration/timespan
Total (n = 3,879)	82.0	90.3	83.3	75.8	84.1	76.4
WVDE - Office of Career and Technical Accountability and Support (n = 27)	89.6	96.2	91.0	91.7	88.5	80.8
Marshall University - June Harless Center (n = 76)	85.6	90.7	86.0	83.1	89.0	79.2
WVDE - Office of Instructional Technology (n = 850)	85.2	92.8	85.5	84.5	82.2	80.9
RESA 1 (n = 292)	85.0	92.0	84.2	79.8	90.7	78.3
Fairmont State University (n = 26)	84.1	86.3	84.2	79.6	88.3	81.8
WVDE - Office of Special Programs (n = 296)	84.1	94.2	85.3	77.6	83.8	79.6
Center for Professional Development (n = 638)	83.7	90.1	85.3	78.3	84.2	80.6
RESA 6 (n = 132)	82.9	92.1	86.6	73.0	89.0	73.9
RESA 4 (n = 229)	81.8	91.5	82.2	75.8	86.5	73.0
RESA 2 (n = 139)	81.2	90.3	82.6	70.0	87.7	75.6
WVDE - Office of School Improvement (n = 23)	81.0	93.8	84.1	62.7	86.0	78.3
WVDE - Office of Career and Technical Instruction (n = 115)	79.1	87.4	83.2	71.3	81.0	72.5
WVDE - Office of Assessment and Accountability (n = 93)	77.4	86.2	80.6	66.2	82.9	71.0
RESA 5 (n = 188)	77.2	88.2	81.4	67.8	81.9	66.7
RESA 3 (n = 207)	76.2	84.3	77.2	66.9	84.2	68.6
RESA 7 (n = 234)	75.1	83.3	77.9	63.8	80.8	69.7
RESA 8 (n = 104)	74.9	86.7	77.9	59.9	75.8	74.0
WVDE - Office of Professional Preparation (Certification) (n = 70)	74.9	83.7	76.5	59.3	85.6	69.4

Note: Analysis based on responses from school-based respondents only. Four providers, Marshall University's Department of Clinical Studies and Professional Development Schools and the WVDE Offices of Federal Programs, Early Learning, and Secondary Learning were not included because there were fewer than 20 respondents for these items among the school-based respondents.

Data source: WVBE PD Master Plan Participant Survey 2013-2014

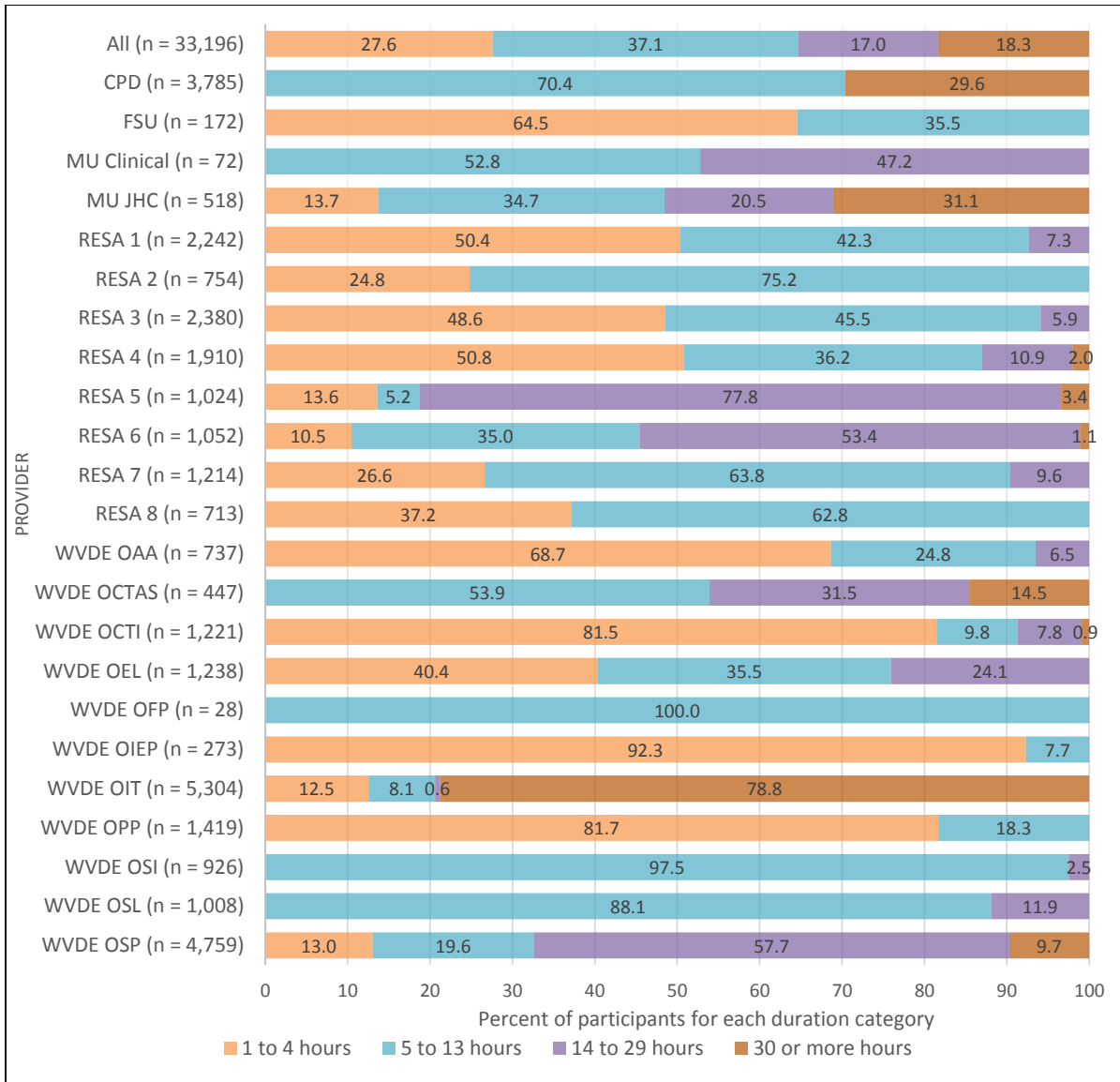


Figure A 2. Duration of Professional Development by Individual Provider

Data Source: 2013-2014 PD Master Plan Session Report database

All = All providers; CPD = Center for Professional Development; FSU = Fairmont State University; MU Clinical = Marshall University Clinical Experiences & PD Schools; MU JHC = Marshall University June Harless Center; RESA = regional education service agency (1–8); WVDE OAA = Office of Assessment and Accountability; WVDE OCTAS = Office of Career and Technical Accountability and Support; WVDE OCTI = Office of Career and Technical Instruction; WVDE OEL = Office of Early Learning; WVDE OFP = Office of Federal Programs; WVDE OIEP = Office of Institutional Education Programs; WVDE OIT = Office of Instructional Technology; WVDE OPP = Office of Professional Preparation; WVDE OSI = Office of School Improvement; WVDE OSL = Office of Secondary Learning; WVDE OSP = Office of Special Programs

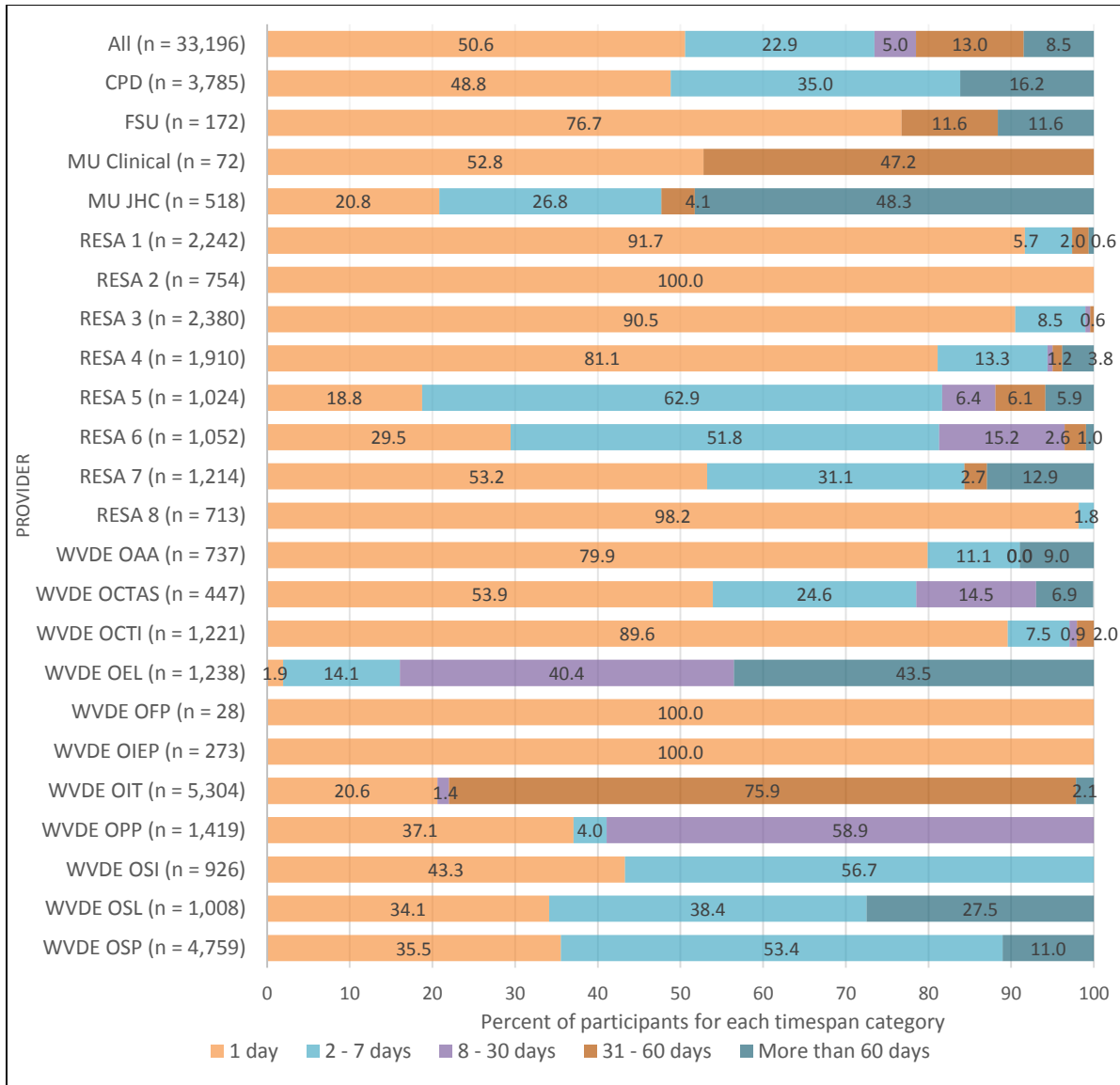


Figure A 3. Timespan of Professional Development by Individual Provider

Data Source: 2013-2014 PD Master Plan Session Report database

All = All providers; CPD = Center for Professional Development; FSU = Fairmont State University; MU Clinical = Marshall University Clinical Experiences & PD Schools; MU JHC = Marshall University June Harless Center; RESA = regional education service agency (1–8); WVDE OAA = Office of Assessment and Accountability; WVDE OCTAS = Office of Career and Technical Accountability and Support; WVDE OCTI = Office of Career and Technical Instruction; WVDE OEL = Office of Early Learning; WVDE OFP = Office of Federal Programs; WVDE OIIEP = Office of Institutional Education Programs; WVDE OIT = Office of Instructional Technology; WVDE OPP = Office of Professional Preparation; WVDE OSI = Office of School Improvement; WVDE OSL = Office of Secondary Learning; WVDE OSP = Office of Special Programs

Table A 8. Participants' Views About Helpfulness of the Session in Meeting the Targeted Board Goal

Helpful in meeting aligned goal	Goal 1. Comprehensive Early Literacy		Goal 2. Content & Pedagogy to Standards		Goal 3. Leadership Competencies		Goal 4. Educator Evaluation System	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
	Total	374	100.0	3,063	100.0	561	100.0	414
Not applicable	32	8.6	362	11.8	76	13.5	21	5.1
Strongly disagree	4	1.1	52	1.7	7	1.2	5	1.2
Disagree	29	7.8	342	11.2	46	8.2	33	8.0
Agree	219	58.6	1,879	61.3	342	61.0	257	62.1
Strongly agree	90	24.1	428	14.0	90	16.0	98	23.7

Data source: WVBE PD Master Plan Participant Survey 2013-2014

Table A 9. Perceived Impact of Professional Development (Pre/Post) Overall, by Provider Group, and by Individual Provider: Statistical Significance and Effect Size

Pre/post pairs	N	Paired Differences					t	df	Sig. (2-tail)	Cohen's d
		Mean	Std. Deviation	Mean	95% Confidence Interval of the Difference					
					Lower	Upper				
All providers										
Knowledge	4,358	.66223	.73921	.01120	.64028	.68418	59.140	4357	.000	1.0
Practice of skills	4,153	.48327	.73599	.01142	.46087	.50566	42.315	4152	.000	0.6
Attitudes/beliefs	4,201	.31516	.62578	.00965	.29623	.33409	32.643	4200	.000	0.4
Provider groups										
Center for Professional Development										
Knowledge	687	.72198	.74221	.02832	.66638	.77758	25.496	686	.000	1.1
Practice of skills	656	.55335	.74969	.02927	.49588	.61083	18.905	655	.000	0.8
Attitudes/beliefs	657	.30289	.60577	.02363	.25649	.34930	12.816	656	.000	0.4
Institutions of higher education										
Knowledge	130	1.00000	.83527	.07326	.85506	1.14494	13.650	129	.000	1.3
Practice of skills	123	.61789	.84466	.07616	.46712	.76865	8.113	122	.000	0.7
Attitudes/beliefs	120	.45833	.72060	.06578	.32808	.58859	6.968	119	.000	0.6
Regional education service agencies										
Knowledge	1,822	.60593	.73099	.01713	.57234	.63951	35.382	1821	.000	0.9
Practice of skills	1,758	.44425	.72599	.01731	.41029	.47821	25.657	1757	.000	0.6
Attitudes/beliefs	1,764	.29422	.61569	.01466	.26547	.32297	20.070	1763	.000	0.4
West Virginia Department of Education										
Knowledge	1,884	.68471	.73481	.01693	.65151	.71792	40.446	1883	.000	1.0
Practice of skills	1,775	.50423	.73168	.01737	.47016	.53829	29.034	1774	.000	0.7
Attitudes/beliefs	1,821	.34871	.63832	.01496	.31937	.37805	23.312	1820	.000	0.4
Individual providers										
Center for Professional Development										
Knowledge	681	.72540	.73929	.02833	.66978	.78103	25.606	680	.000	1.1
Practice of skills	651	.55607	.74905	.02936	.49842	.61372	18.941	650	.000	0.8
Attitudes/beliefs	652	.30368	.60701	.02377	.25700	.35036	12.774	651	.000	0.4
Fairmont State University										
Knowledge	26	.57692	.64331	.12616	.31709	.83676	4.573	25	.000	0.9
Practice of skills	25	.40000	.64550	.12910	.13355	.66645	3.098	24	.005	0.8
Attitudes/beliefs	26	.26923	.53349	.10463	.05375	.48471	2.573	25	.016	0.5
Marshall University - Clinical Experiences and Professional Development Schools										
Knowledge	22	.77273	.61193	.13046	.50141	1.04404	5.923	21	.000	1.6
Practice of skills	22	.68182	.83873	.17882	.30995	1.05369	3.813	21	.001	0.9
Attitudes/beliefs	22	.54545	.59580	.12703	.28129	.80962	4.294	21	.000	1.0
Marshall University - June Harless Center										
Knowledge	78	1.16667	.88884	.10064	.96626	1.36707	11.592	77	.000	1.6
Practice of skills	73	.65753	.90091	.10544	.44734	.86773	6.236	72	.000	0.7
Attitudes/beliefs	68	.52941	.81900	.09932	.33117	.72765	5.330	67	.000	0.6
RESA 1										
Knowledge	354	.64689	.78380	.04166	.56496	.72882	15.529	353	.000	1.0
Practice of skills	336	.38393	.77935	.04252	.30029	.46756	9.030	335	.000	0.5
Attitudes/beliefs	342	.23977	.67711	.03661	.16775	.31178	6.549	341	.000	0.3

Table A 9 continues on next page.

Table A 9. Perceived Impact of Professional Development (Pre/Post) Overall, by Provider Group, and by Individual Provider: Statistical Significance and Effect Size

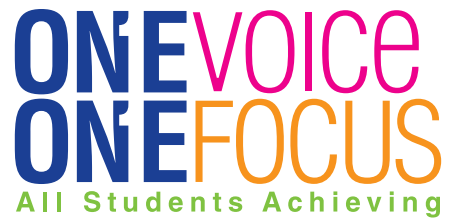
Pre/post pairs	N	Mean	Std. Deviation	Paired Differences			t	df	Sig. (2-tail)	Cohen's d	
				Mean	Std. Error	95% Confidence Interval of the Difference					
						Lower					Upper
RESA 2											
Knowledge	159	.54088	.66315	.05259	.43701	.64475	10.285	158	.000	1.0	
Practice of skills	156	.50000	.71392	.05716	.38709	.61291	8.748	155	.000	0.7	
Attitudes/beliefs	159	.30818	.64582	.05122	.20702	.40933	6.017	158	.000	0.4	
RESA 3											
Knowledge	325	.56923	.70643	.03919	.49214	.64632	14.526	324	.000	0.8	
Practice of skills	314	.40764	.67786	.03825	.33238	.48291	10.656	313	.000	0.5	
Attitudes/beliefs	313	.27157	.57712	.03262	.20738	.33575	8.325	312	.000	0.3	
RESA 4											
Knowledge	263	.53612	.64621	.03985	.45766	.61458	13.455	262	.000	0.8	
Practice of skills	255	.46275	.69700	.04365	.37679	.54870	10.602	254	.000	0.6	
Attitudes/beliefs	252	.36905	.62701	.03950	.29126	.44684	9.343	251	.000	0.5	
RESA 5											
Knowledge	187	.65775	.74810	.05471	.54983	.76568	12.023	186	.000	1.1	
Practice of skills	181	.47514	.69577	.05172	.37309	.57719	9.187	180	.000	0.6	
Attitudes/beliefs	183	.29508	.58397	.04317	.20991	.38026	6.836	182	.000	0.3	
RESA 6											
Knowledge	139	.73381	.76685	.06504	.60520	.86242	11.282	138	.000	1.2	
Practice of skills	135	.54074	.74074	.06375	.41465	.66683	8.482	134	.000	0.8	
Attitudes/beliefs	134	.32090	.60822	.05254	.21697	.42482	6.107	133	.000	0.4	
RESA 7											
Knowledge	263	.69582	.79037	.04874	.59985	.79178	14.277	262	.000	1.0	
Practice of skills	253	.46245	.80399	.05055	.36290	.56200	9.149	252	.000	0.6	
Attitudes/beliefs	251	.32669	.61061	.03854	.25079	.40260	8.476	250	.000	0.4	
RESA 8											
Knowledge	120	.38333	.63753	.05820	.26810	.49857	6.587	119	.000	0.6	
Practice of skills	117	.40171	.61672	.05702	.28878	.51464	7.046	116	.000	0.5	
Attitudes/beliefs	119	.21008	.50210	.04603	.11894	.30123	4.564	118	.000	0.2	
WVDE - Office of Assessment and Accountability											
Knowledge	153	.58824	.61269	.04953	.49037	.68610	11.876	152	.000	0.8	
Practice of skills	140	.35714	.57616	.04869	.26086	.45342	7.334	139	.000	0.3	
Attitudes/beliefs	145	.19310	.53094	.04409	.10595	.28025	4.380	144	.000	0.2	
WVDE - Office of Career and Technical Accountability and Support											
Knowledge	28	1.07143	1.01575	.19196	.67756	1.46529	5.582	27	.000	2.0	
Practice of skills	26	.53846	.70602	.13846	.25329	.82363	3.889	25	.001	0.8	
Attitudes/beliefs	28	.28571	.59982	.11336	.05313	.51830	2.521	27	.018	0.3	
WVDE - Office of Career and Technical Instruction											
Knowledge	114	.51754	.74350	.06963	.37958	.65550	7.432	113	.000	0.8	
Practice of skills	103	.37864	.72917	.07185	.23613	.52115	5.270	102	.000	0.5	
Attitudes/beliefs	109	.18349	.49376	.04729	.08974	.27723	3.880	108	.000	0.2	
WVDE - Office of Early Learning											
Knowledge	77	.31169	.54434	.06203	.18814	.43524	5.025	76	.000	0.4	
Practice of skills	65	.13846	.46358	.05750	.02359	.25333	2.408	64	.019	0.1	
Attitudes/beliefs	74	.08108	.43025	.05002	-.01860	.18076	1.621	73	.109 *	0.1	

Table A 9 continues on next page.

Table A 9. Perceived Impact of Professional Development (Pre/Post) Overall, by Provider Group, and by Individual Provider: Statistical Significance and Effect Size

Pre/post pairs	N	Paired Differences					t	df	Sig. (2-tail)	Cohen's d
		Mean	Std. Deviation	Mean	95% Confidence Interval of the Difference					
					Lower	Upper				
WVDE - Office of Federal Programs										
Knowledge	8	.75000	.70711	.25000	.15884	1.34116	3.000	7	.020	1.6
Practice of skills	8	.50000	.53452	.18898	.05313	.94687	2.646	7	.033	0.5
Attitudes/beliefs	8	.37500	.51755	.18298	-.05768	.80768	2.049	7	.080 *	0.8
WVDE - Office of Instructional Technology										
Knowledge	947	.75607	.76156	.02475	.70751	.80464	30.552	946	.000	1.2
Practice of skills	916	.52183	.76434	.02525	.47227	.57140	20.663	915	.000	0.7
Attitudes/beliefs	921	.39522	.67578	.02227	.35152	.43892	17.749	920	.000	0.5
WVDE - Office of Professional Preparation (Certification)										
Knowledge	89	.71910	.76854	.08147	.55721	.88100	8.827	88	.000	0.9
Practice of skills	80	.52500	.81092	.09066	.34454	.70546	5.791	79	.000	0.7
Attitudes/beliefs	78	.38462	.60797	.06884	.24754	.52169	5.587	77	.000	0.5
WVDE - Office of School Improvement										
Knowledge	37	.48649	.73112	.12020	.24272	.73025	4.047	36	.000	0.8
Practice of skills	34	.41176	.60891	.10443	.19931	.62422	3.943	33	.000	0.6
Attitudes/beliefs	36	.11111	.52251	.08708	-.06568	.28790	1.276	35	.210 *	0.2
WVDE - Office of Secondary Learning										
Knowledge	19	.47368	.77233	.17718	.10143	.84593	2.673	18	.016	0.6
Practice of skills	19	.57895	.60698	.13925	.28639	.87150	4.158	18	.001	0.7
Attitudes/beliefs	18	.22222	.73208	.17255	-.14183	.58628	1.288	17	.215 *	0.3
WVDE - Office of Special Programs										
Knowledge	269	.58736	.60839	.03709	.51433	.66039	15.834	268	.000	0.9
Practice of skills	244	.55328	.70945	.04542	.46382	.64274	12.182	243	.000	0.8
Attitudes/beliefs	263	.34601	.62246	.03838	.27043	.42158	9.015	262	.000	0.4

Data source: WVBE PD Master Plan Participant Survey 2013-2014



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