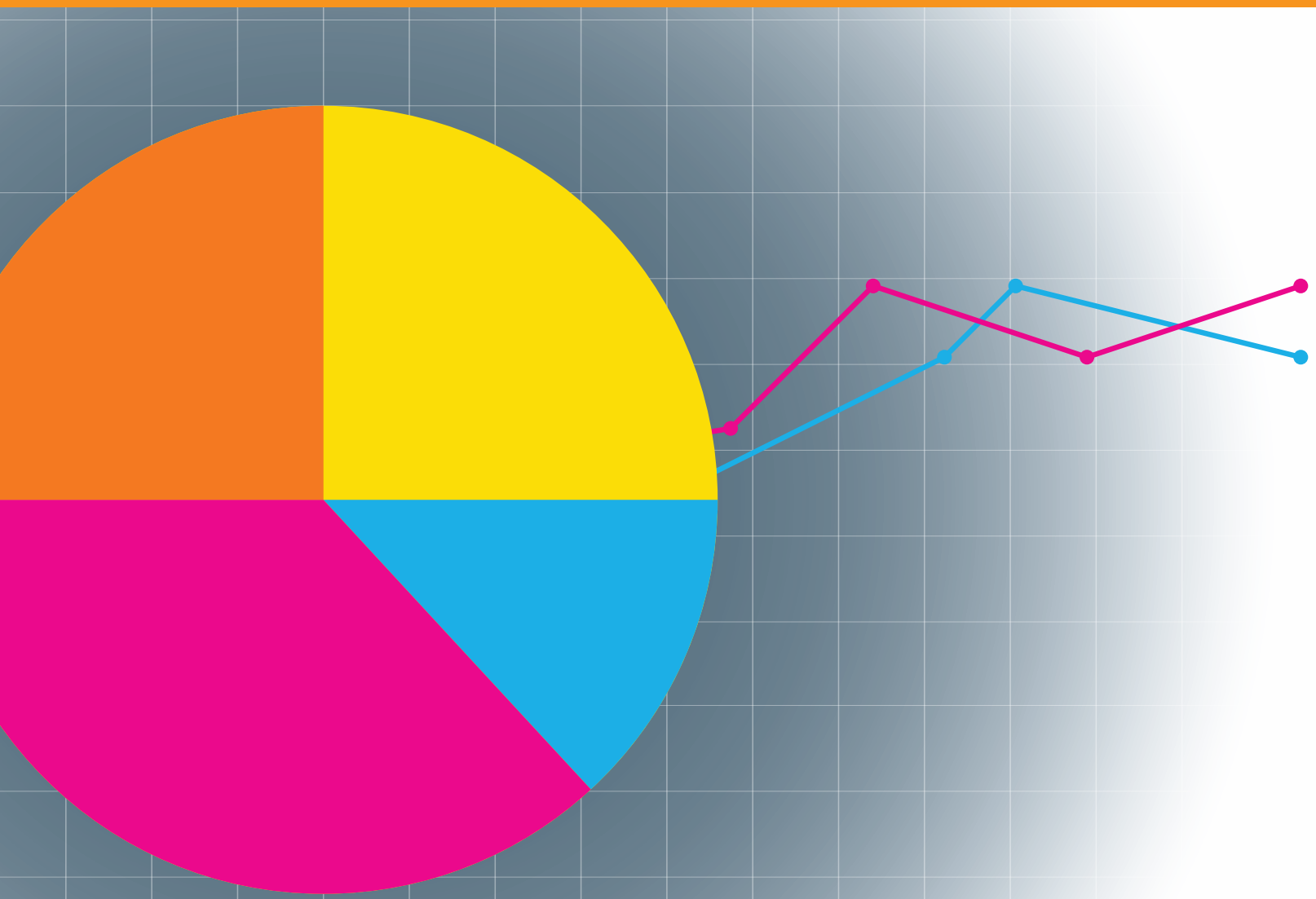
Implementation of the Master Plan for Statewide Professional Staff Development for 2014-2015

An Evaluation Study



West Virginia Department of EDUCATION
Office of Research

Implementation of the Master Plan for Statewide Professional Staff Development for 2014-2015

An Evaluation Study

Patricia Cahape Hammer

West Virginia Department of EDUCATION

West Virginia Department of Education
Division of Technology
Office of Research, Accountability, and Data Governance
Building 6, Suite 825, State Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305
http://wvde.state.wv.us/research
November 2015

Michael J. Martirano, Ed.D.
State Superintendent of Schools
West Virginia Department of Education

Sterling Beane
Chief Technology and Information Officer
West Virginia Department of Education

Andy Whisman, Ph.D.
Executive Director
Office of Research, Accountability, and Data Governance

Keywords
Evaluation, professional development, research-based professional development practice, statewide system for professional development, regional education service agencies, state department of education, state board of education, effectiveness, efficiency, impact, institutions of higher education, Center for Professional Development

Suggested Citation
Hammer, P. C. (2015). *Implementation of the Master Plan for Statewide Professional Staff Development for 2013-2014: An evaluation study*. Charleston, WV: West Virginia Department of Education, Division of Technology, Office of Research, Assessment, and Data Governance.

Content Contact
Patricia Cahape Hammer, MA
Coordinator, IRB Chair
Office of Research
phammer@k12.wv.us

This research study was reviewed and approved by the West Virginia Department of Education Institutional Review Board (WVDE-IRB-06). Should you desire additional details about this study's approval status, you may contact the WVDE IRB cochairperson, Andy Whisman (swhisman@k12.wv.us).

Contents

Executive Summary vii

Introduction 1

Components of the PD Master Plan 1

Definition 1

Standards 2

Goals 2

Sessions 2

Goals of the Evaluation 3

Relevant Scholarship 3

Methods 5

Population Characteristics 6

Sampling Procedures 7

Measures 7

Research Design 9

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 West Virginia State Board of Education (WVBE) Standards for Professional Learning? 12

EQ4. To what extent did providers' offerings reflect research-based practices? 13

Efficiency 18

EQ5. To what extent did providers collaborate in the delivery of professional development? 18

Impact 19

EQ6. How well did providers' offerings address the WVBE's 2013-2014 Goals for Professional Learning? 20

EQ7. What was the impact of the professional development offered through the 2014-2015 PD Master Plan on educators' knowledge, practice, and attitudes? 21

Discussion 23

Effectiveness of the Master Plan 23
Efficiency of the Master Plan 24
Impact of the Master Plan 24
Limitations of the Study 25
Recommendations 26
References 26
Appendix A. Research-Based PD Practices Index 29
Appendix B. Additional Data Tables and Figures 31

List of Figures

Figure 1. Trends in Participation of Provider Groups in the PD Master Plan, 2011–2012 through 2014–2015 10
Figure 2. Percentage of Sessions Included in the PD Master Plan That Were Reported as Delivered by Provider Groups 11
Figure 3. Rate of Agreement Among Teachers That Research-Based Qualities Were Present in Session Attended 14
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 15
Figure 5. Distribution of Attendees Across Duration and Timespan Categories by Provider Group 17
Figure 6 Average Number of Collaborations per Session by Provider 19
Figure 7. Percent of Respondents Who Agreed or Strongly Agreed That the Session Was Helpful in Meeting the Targeted Board Goal 21
Figure 8. Reported Impact of PD on Knowledge, Practice, and Attitudes by Provider Group 23
Figure 1. Trends in Participation of Provider Groups in the PD Master Plan, 2011–2012 through 2014–2015 10
Figure 2. Percentage of Sessions Included in the PD Master Plan That Were Reported as Delivered by Provider Groups 11
Figure 3. Rate of Agreement Among Teachers That Research-Based Qualities Were Present in Session Attended 14
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 15

Figure 5. Distribution of Attendees Across Duration and Timespan Categories by Provider Group 17

Figure 6 Average Number of Collaborations per Session by Provider 19

Figure 7. Percent of Respondents Who Agreed or Strongly Agreed That the Session Was Helpful in Meeting the Targeted Board Goal 21

Figure 8. Reported Impact of PD on Knowledge, Practice, and Attitudes by Provider Group 23

List of Tables

Table 1. Provider reporting schedule 6

Table 2. 2014-2015 PD Master Plan Evaluation Questions, Indicators, and Data Sources: Alignment with Legislative Mandate 8

Table 3. Reported Number and Percent of Sessions That Met Each Board Standard by Provider 12

Table 4. Percent of Teachers That Agreed/Strongly Agreed the Session They Attended Met This Criteria, by Provider 16

Table 5. Coverage of Board Goals for Professional Learning 20

Table 6. Overall Average Self-Scores for Extent of Knowledge, Practice, and Beliefs Before and After Professional Development 22

Table 7. Interpretation of Effect Size Estimates Used in this Study 22

List of Appendix Figures and Tables

Figure B 1. Duration (Contact Hours) of Professional Development by Individual Provider 38

Figure B 2. Timespan (Days from Start to End of Experience) of Professional Development by Individual Provider 39

Table B 1. Participant Survey Response Rates, Confidence Levels, and Confidence Intervals by Provider Group and Provider 31

Table B 2. Number of Sessions in the PD Master Plan, and Number and Percent Delivered by Provider Group and Individual Provider 32

Table B 3. Provider Performance in Submitting E-mail Addresses for Participants in Professional Development Sessions They Conducted 33

Table B 4. Reasons Given for Not Implementing Some Sessions in the PD Master Plan by Provider 34

Table B 5. Summary of Provider Explanations for Sessions Not Delivered or Not Reported 36

Table B 6. Percent of Respondents That Reported Presence or Absence of Research-Based PD Practices by Role Group 37

Table B 7. Participants' Views About Helpfulness of the Session in Meeting the Targeted Board Goal 40

Table B 8. Perceived Impact of Professional Development (Pre/Post) Overall, by Provider Group, and by Individual Provider: Statistical Significance and Effect Size 40

Executive Summary

The West Virginia Board of Education (WVBE) 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 (PD), and roles and responsibilities for state and regional PD providers. Accordingly, the board is required to establish an annual master plan for professional development (PD Master Plan) 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 WVBE 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 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 PD practices?

With regard to efficiency,

EQ5. To what extent did providers collaborate in the delivery of PD, 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 PD 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: The WVDE, Center for Professional Development (CPD), the public institutions of higher education (IHE), and the regional educational service agencies (RESAs).

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 four collection periods: July 1 through October 31, 2014; November 1, 2014 through January 31, 2015; February 1 through April 30, 2015; and May 1 through June 30, 2015. E-mail addresses submitted during the first three data collection periods were used in a *survey of participants* conducted in two parts, with one random sample of unique participants surveyed in November/December 2014 and a second sample in May/June 2015. It should be noted that participants in PD that took place during the fourth 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 WVBE policies, in order to put certain aspects of the study into context.

Findings

During the course of the 2014-2015 reporting year, 1,132 provider reports were completed, and 3,578 usable participant survey responses were received from a sample of 12,299, representing a 29.1% response rate, which was much lower than in previous years, when rates tended to range from 63% to 66%. The low response rate was due largely to the transition to a statewide Outlook Exchange system for email to the large majority of staff at schools, districts, and the WVDE during the first round of surveys, which led to major impediments during the first half of the survey data collection.

Major findings for 2014–2015 include the following, arranged here by effectiveness, efficiency, and impact:

Effectiveness of the PD Master Plan

The PD Master Plan included slightly fewer topics in 2014-2015 (434) than the previous year (479) and at 32,530 participants, attendance declined slightly overall compared with the previous year (33,196) This decline was due to lower participation for CPD, RESAs, and WVDE; however, with the addition of three more IHEs for this year, attendance more than doubled at IHE-provided sessions to 1,545 participants.

The PD Master Plan was implemented at levels comparable to previous years: overall 81% of sessions planned were delivered during the year.

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 Standards 3 (Requires prioritizing, monitoring, and coordinating resources for educator learning), 5 (Integrates theories, research, and models of human learning into learning designs to achieve its intended outcomes), and 7 (Aligns its outcomes with educator performance and student curriculum standards). The two standards providers least often reported meeting were Standards 4 (Uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning) and 2 (Requires skillful leadership to develop capacity, advocate, and create support systems for professional learning).

Regarding the extent to which providers' offerings reflected five research-based PD l development practices, overall, according to the participant survey active learning was the research-based PD practice least often present, followed by sufficient duration/timespan. In both cases, RESAs and the WVDE scored the lowest in their use of these research-based practices. Content focus was most often present, with IHEs topping the list in their use of this practice.

Providers' session reports seemed to confirm the findings about duration and timespan above. Of the 32,530 attendees reported by providers, about 20% (approximately 6,500) participated in PD lasting at least 30 hours; another 10% (approximately 3,250) 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 70% of participants attended sessions ranging from 1 to 13 hours.

Efficiency of the PD Master Plan

The Legislature's call for decentralization of PD seems to be reflected in the trends for the four major providers in the PD Master Plan, with the WVDE decreasing its number of offerings and participants from the previous year. RESAs and CPD held fairly steady, while IHEs increased the number of institutions participating from two to five, and doubled the number of participants in IHE-sponsored sessions. Still, the WVDE continued to report the greatest number of both sessions planned and participants in attendance.

The providers who exercised the greatest degree of collaboration were located in the WVDE, with CPD coming in second. Looking at individual providers, the top nine were in the WVDE.

Impact of the Master Plan

While all four of the Board's Goals for Professional Learning received coverage, Goal 2 was the focus of about 72% of sessions and 60% of attendees.

The participant surveys showed a high level of general agreement that the sessions they attended had been helpful in meeting the goals with which they were aligned for the first three goals—that is, 83% found the session helpful for Goal 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; 71% for Goal 2 (increase deep content knowledge and proficiency in designing and delivering standards-driven instruction and assessments for all preK-12 West Virginia educators); 79% for Goal 3 (improve leadership competencies for principals and assistant principals in order to support high quality teaching and learning0. On the other hand, only 57% of participants in Goal 4-aligned sessions found them helpful in advancing toward that goal (support the full implementation of the revised educator evaluation system).

According to responses to retrospective pre- and posttest items in the participants' survey, the PD had large effects on educators' knowledge of the PD topic, and moderate effects on their practice and their attitudes/beliefs.

Limitations of the Study

The response rate for the participant survey, 29.1%, was far lower than in previous years, when rates tended to range from 63% to 66%. The low response rate was due largely to the transition to a statewide Outlook Exchange system for email to the large majority of staff at schools, districts, and the WVDE during the first round of surveys, which led to two major impediments. First, many recipients had not fully transitioned to the new system so some were using their former email addresses instead of the new ones. Second, the server settings for Outlook considered email from SurveyMonkey—the system we used to send invitations and record the responses online to be spam, so messages were blocked.

The participant survey conducted in November-December 2014 and May-June 2015 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 pre- and posttest methodology to assess changes in knowledge, behavior and skills, and attitudes and beliefs poses some concerns.

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 focus on skillful leadership to develop capacity, advocate, and create support systems for professional learning.

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

- Increase the use of active learning during PD 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 PD in the state, we recommend that the WVBE and WVDE

- 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 PD providers that aligns with and supports local learning communities working to adopt the Board's Standards for Professional Learning.

Introduction

In 2013, the legislation was signed into law 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 West Virginia Board of Education (WVBE) "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 (PD), and roles and responsibilities for state and regional PD providers. The WVBE was required to establish an annual master plan for professional development to be provided to public school educators across the state. The Master Plan for Statewide Professional Development (PD Master Plan) must include the "state board-approved plans for professional development by the State Department of Education, the Center for Professional Development, the public 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 is 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). As in the previous three years, the West Virginia Department of Education's (WVDE) Office of Assessment and Research was charged with the responsibility to conduct the evaluation.[1]

Components of the PD Master Plan

The PD Master Plan includes a definition, standards, and goals for professional learning, as well as a slate of session titles to be offered during the year.

Definition

In 2012, the WVBE adopted the following definition:

Professional development includes sustained experiences that lead to the development of knowledge, skills, practices, and dispositions educators need to help students perform at higher levels and achieve college and career readiness.

[1] The WVDE underwent reorganization during the course of this study. The Research unit is now housed in the Division of Technology's Office of Research, Accountability, and Data Governance.

Standards

That same year, the WVBE 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.; WVBE, 2014).

Because these standards are meant to guide professional learning in schools and districts at the local level—in alignment with the legislative education reform—they present a challenge to state and regional providers who must align their offerings with them.

Goals

The Board Goals for Professional Learning reflect the priorities for the state education system, which in 2014-2015 was in its first year of full implementation of the Next Generation State Standards and the new teacher evaluation system. Thus, the goals were to

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.

Sessions

The PD Master Plan for 2014-2015 also included a slate of 434 session topics aligned with the goals, which were planned and implemented by the four major provider groups—the Center for Professional Development, the state's institutions of higher education, regional education service agencies, and the WVDE.

Goals of the Evaluation

The goals of this evaluation are to study the effectiveness, efficiency, and impact of the statewide 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 2014-2015 Goals for Professional Learning?

EQ7. What was the impact of the professional development offered through the 2014-2015 PD Master Plan on educators' knowledge, practice, and attitudes?

Relevant Scholarship

The Learning Forward Standards for Professional Learning, which were adopted by the WVBE were developed based on a comprehensive study conducted by a team of researchers from Stanford University led by Linda Darling-Hammond, with contributions and support from 40 professional associations. Working together, the standards make up components of a system for 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.

A literature review (Hammer, 2013) revealed both contextual and quality issues to be considered in facilitating professional learning experiences for teachers and administrators. 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
- School-based professional learning communities 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 PD 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 PD 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 because of their 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 West Virginia Board of Education (WVBE) Standards for Professional Learning, the beginning and ending dates, the duration and attendance for the session, its format and county location, and email addresses for participants. Reporting followed the schedule shown in Table 1 below.

E-mail addresses submitted during the first three data collection periods were used in a survey of participants conducted in two parts, with one random sample of unique participants surveyed in November/December 2014 and a second group in May/June 2015. Participants in professional development that took place during the fourth 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 WVBE policies, in order to put certain aspects of the study into context.

Table 1. Provider reporting schedule

Data collection period 1	July 1, 2014–October 31, 2014 (Deadline, November 7, 2014)	Reports sessions that began and ended during this time period
Data collection period 2	November 1, 2014–January 31, 2015 (Deadline, February 6, 2014)	Report sessions that began anytime since July 1, 2014 and ended during the second data collection period
Data collection period 3	February 1, 2014–April 30, 2015 (Deadline, May 7, 2015)	Reports sessions that began anytime since July 1, 2014 and ended during the third data collection period. Note: Sessions that began before April 1 and will end by May 15 should also be reported.
Data collection period 4	May 1, 2015-June 30, 2015 (Deadline, July 7, 2015)	Provider reports for sessions that began and ended during this data collection period and for those overlooked earlier. No email addresses required.

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. In 2014–2015 this provider group included the following organizations and agencies:

- Center for Professional Development (CPD)
- Five 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)
  - West Virginia State University
  - West Virginia University
  - West Virginia University Parkersburg
- All eight regional education service agencies (RESAs)
- Eleven program offices in the West Virginia Department of Education (WVDE) that provide professional learning experiences to educators across the state, including
  - Schools for the Deaf and Blind
  - Office of Assessment and Research
  - Office of Career & Technical Instruction
  - Office of Early Learning
  - Office of Federal Programs
  - Office of Institutional Educ. Programs
  - Office of Instructional Technology
  - Office of Professional Preparation
  - Office of School Improvement
  - Office of Secondary Learning
  - Office of Special Programs

To investigate the performance of these 25 organizations and agencies, we surveyed the participants in the PD 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, regular 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 = 13,452 for the first participant survey; N = 11,958 for the second).
- In the second survey, email addresses that had been 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 8,527 unique email addresses for the first data collection period and 7,541 for the second.
- The data were then stratified by provider. Knowing the population of each provider, the MaCorr Research Sample Size Calculator[2] was used to determine the sample size needed to be between a +/-5% confidence interval at the 95% confidence level. To that figure, an additional 50% was added when possible, to allow for attrition and lack of 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. After subtracting those that bounced back or opted out of the survey, a total of 12,105 unique e-mail invitations were sent.

Measures

To address the seven evaluation questions, different combinations of the two primary data sources described above and policy documents related to the CPD and RESAs were employed, as outlined in Table 2.

The online questionnaire used in the participant survey was similar to the one used in 2013–2013. The quality measure used was based on the findings of the literature review described in the Relevant Scholarship section above. 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, page 29).

[2]. Available online at http://www.macorr.com/sample-size-calculator.htm.

Table 2. 2014-2015 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?	• Percentage of PD offerings that were planned versus the ones delivered • Participation in the evaluation of the PD Master Plan • Number of participants served	2014-2015 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 email 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	2014-2015 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: • *Content and content pedagogy* focus; • *Coherence* with teachers' professional needs, school goals, and state standards, curriculum, and assessments; • *Active learning*, including time for planning implementation; • *Collective participation* of teachers or administrators from the same district, school, grade level, content area, or specialization; and • *Duration* (at least 30 hours) and *timespan* (over months or years)	2014-2015 PD Master Plan Session Report database (online system) (duration/ timespan) WVBE PD Master Plan Participant Survey 2014-2015
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	2014-2015 PD Master Plan Session Report database Board policy documents for RESAs and CPD
Impact	EQ6. How well did providers' offerings address the WVBE's 2014-2015 **Goals for Professional Learning**?	• Proportion of PD offerings targeting each of the goals overall • Participant reports of PD's helpfulness in meeting board goals	2014-2015 PD Master Plan Provider Session Submissions database (online form) WVBE PD Master Plan Participant Survey 2014-2015
	EQ7. What was the **impact** of the professional development offered through the 2014-2015 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 2014-2015

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 CPD, used to understand contextual issues, especially with regard to collaboration, were accessed via the websites for the WVBE (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. For the final evaluation question (EQ7), significance testing (paired *t* tests) was used to determine statistical significance of differences between participants' self-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. 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 2014-2015 reporting year, 1,132 provider reports were completed, and 3,578 usable participant survey responses were received from a sample of 12,299, representing a 29.1% response rate, which was much lower than in previous years, when rates tended to range from 63% to 66% (Table B 1). The low response rate was due largely to the transition to a statewide Outlook Exchange system for email to the large majority of staff at schools, districts, and the West Virginia Department of Education (WVDE) during the first round of surveys, which led to two major impediments. First, many recipients had not fully transitioned to the new system so some were using their former email addresses instead of the new ones. Second, the server settings for Outlook considered email from SurveyMonkey—the system we used to send invitations and record the responses online—to be spam, so messages were blocked.

This level of response to the participant survey poses challenges with regard to reporting on some measures of effectiveness and impact in the participant survey for individual providers—especially those that submitted relatively few participant e-mail addresses—as confidence intervals are larger than 5% for 20 of the 25 providers at a 95% confidence level. For this reason, this report will not focus on individual provider results from the participant survey. At the provider *group* level, the confidence intervals at a 95% confidence level ranged from ±2.2% (regional education service agencies [RESAs]) to ±6.0% (institutions of higher education [IHE]). For more details, see Table B 1. Consequently participant survey results for IHEs must be viewed with some caution.

Effectiveness

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

This question will be addressed in two parts, including the overall participation in developing and implementing the PD 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

The number of providers rose to 25, primarily due to the higher participation of IHEs. Five other IHEs are required by W. Va. Code (§18-2I) to participate, but were not successfully recruited by WVDE to do so.

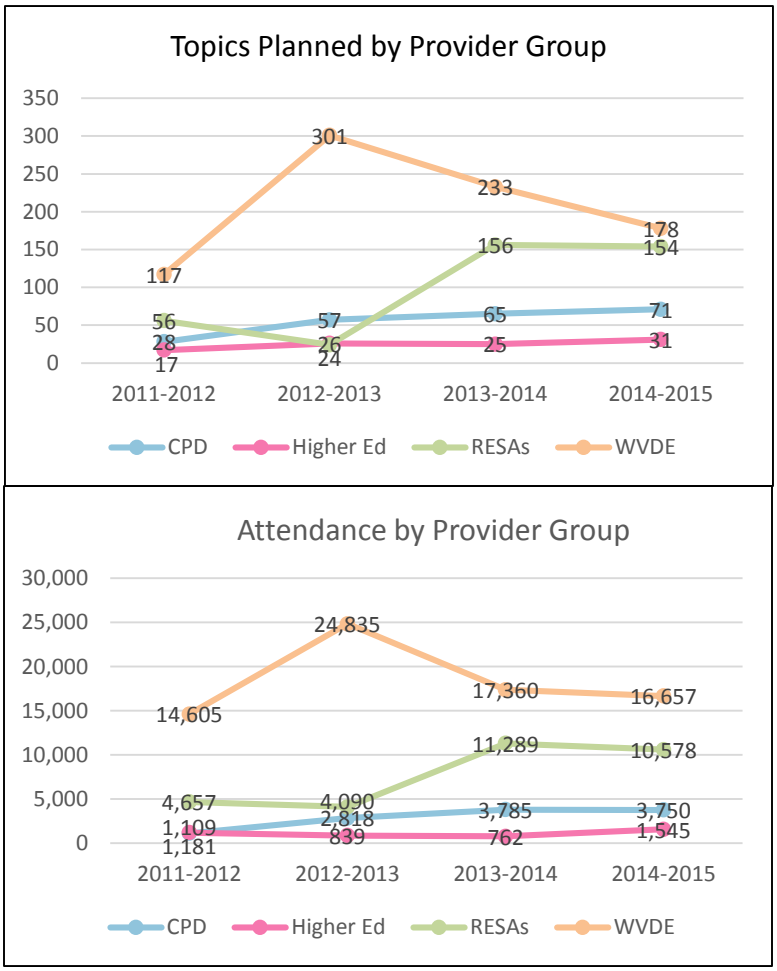


Figure 1. Trends in Participation of Provider Groups in the PD Master Plan, 2011–2012 through 2014–2015

Data source: PD Master Plan Session Report databases

Decentralization of the delivery of professional development—especially when it comes to reducing the role of the WVDE as called for in education reform legislation—appears to be continuing (Figure 1). While the overall number of session topics submitted for the plan has risen strongly from 218 in 2011-2012, to 434 the 2014–2015, the number submitted by each of the four groups has shifted dramatically since 2012-2013, when the reform legislation passed, with the WVDE declining in both number of topics and number of participants for the past two years. The other four provider groups have increased their participation, most notably the RESAs, from 24 topics in 2012-2013 to 154 in 2014-2015. Yet, the WVDE remains the provider group with the most topics and most participants. 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 had in previous years, in addition to true increases in the PD 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 WVBE goals) to as many as 51 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. They have more or less held steady in the past two years.

Attendance declined slightly for CPD, RESAs, and WVDE; however, with the addition of three more IHEs for this year, attendance more than doubled at IHE-provided sessions (Figure 1).

Most professional development planned by providers in the PD Master Plan was later delivered and reported. In all, 434 session topics were approved for the PD Master Plan for 2014-2015; of those over 80.6% (350) were reported as delivered—a similar percent as in previous years. About half of the organizations in the PD Master Plan provided 90% or more of what they had planned. Three providers reported delivering less than half of what was in their plan, including the WVDE Office of Federal Programs (25.0%), Glenville State College (0%) and WVDE Office of Career and Technical Accountability and Support (0%) see Figure 2 below and Table B 2 (page 32).

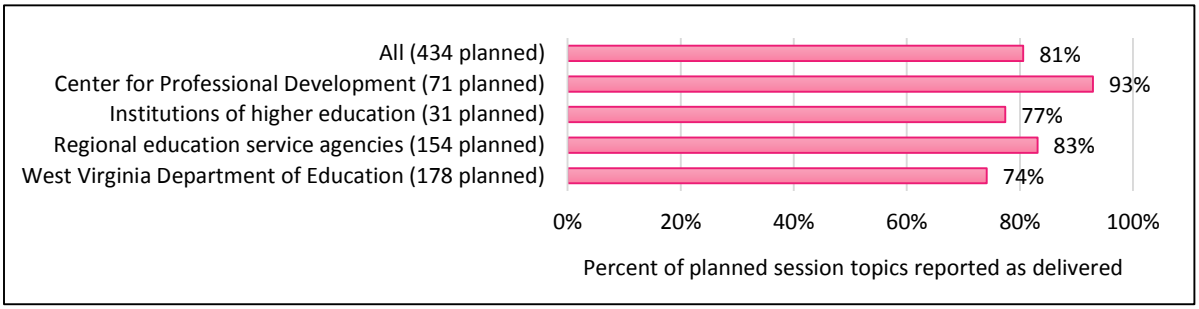


Figure 2. Percentage of Sessions Included in the PD Master Plan That Were Reported as Delivered by Provider Groups

Data Source: 2014-2015 PD Master Plan Session Report database

Implementation of the evaluation of the PD Master Plan

Participation in the PD Master Plan also includes participation in its evaluation, by submitting *session reports* 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 our ability to contact participants and collect their impressions of their professional learning experiences via the participant survey.

Providers varied in their compliance with this aspect of participation in the PD Master Plan. Of the four major groups, the RESAs and CPD performed best, supplying 96.4% and 88.8% of their participants' email addresses, respectively. The WVDE supplied 80.6% and IHEs supplied about two thirds (68.7%). See Table B 3 (page 33) for details.

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 about a quarter of the topics not reported (n = 28), providers explained that the session actually was or would be provided, but on a different schedule (just before or just after the reporting year) or was delivered by other means or providers. Twenty other sessions were cancelled due to lack of interest or to unforeseen circumstances (n = 12). Another quarter of sessions were not reported with no explanation provided (n = 19) or were actually provided but not reported by staff (n = 6), amounting to reporting error. For a breakdown by provider see Table B 4 (page 34). Other summary details are available in Table B 5 (page36).

EQ3. To what extent did providers' offerings reflect the West Virginia State Board of Education (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 WVBE 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 3). 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 WVBE standards. We did, however, ask providers themselves which of the WVBE standards they had met for each of the sessions they reported. Results are shown in Table 3. 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 Standards 3 (Requires prioritizing, monitoring, and coordinating resources for educator learning), 5 (Integrates theories, research, and models of human learning into learning designs to achieve its intended outcomes), and 7 (Aligns its outcomes with educator performance and student curriculum standards).

Table 3. Reported Number and Percent of Sessions That Met Each Board Standard by Provider

	All (n = 1,132)		CPD (n = 189)		IHEs (n = 47)		RESAs (n = 525)		WVDE (n = 371)	
Board standard met	N	%	N	%	N	%	N	%	N	%
1. Learning communities	895	79.1	189	100.0	44	93.6	475	90.5	187	50.4
2. Leadership	789	69.7	189	100.0	38	80.9	413	78.7	149	40.2
3. Resources	929	82.1	189	100.0	33	70.2	443	84.4	264	71.2
4. Data	780	68.9	189	100.0	32	68.1	427	81.3	132	35.6
5. Learning designs	928	82.0	189	100.0	44	93.6	460	87.6	235	63.3
6. Implementation	810	71.6	189	100.0	38	80.9	422	80.4	161	43.4
7. Outcomes	914	80.7	189	100.0	35	74.5	442	84.2	248	66.8

Data source: 2014-2015 PD Master Plan Session Report database

The two standards providers least often reported meeting were Standards 4 (Uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning) and 2 (Requires skillful leadership to develop capacity, advocate, and create support systems for professional learning).

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, 2013; see Appendix A, page 29). 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.

The usefulness of the index was limited for some role groups included in the survey sample, especially RESA staff, district central office staff, school administrators 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 teachers. Consequently there were some items in the index that were presented only to teachers. Table B 6 shows the percentages of respondents from teachers versus the administrator/other role group, who agreed or disagreed with each item or considered it not applicable. Due to this limitation, the following analyses will focus on teachers only. Other sections of the survey will allow us to examine the views of both teachers and non-teachers.

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. Figure 3 gives the big-picture view of the providers' performance collectively with regard to the five research-based practices, as reported by teachers:

Content focus

Nine-tenths of teachers thought the sessions they attended had helped them deepen their content knowledge and content pedagogy. Further, about three quarters of them indicated the session had used the curriculum materials they would be using with their students.

Coherence

Teachers overwhelming thought the sessions they attended were in alignment with the school/district goals and with their own learning needs. About two thirds found the session to be new learning for them, and not going over ground that had been covered previously.

Active learning.

There appears to have been quite a lot of active learning, including discussions, reviewing student work, and opportunities to practice and receive feedback. However, one area that may need attention is allowing time for teachers to begin planning, while at the session,

for how they will put the new skills and ideas to work. Just over half of teachers indicated they had time for planning implementation.

Collective participation

Teachers seem to be attending sessions with their colleagues, for the most part. About three quarters of them agreed that the session motivated them to collaborate more and/or helped them develop common understandings and approaches.

Duration/timespan

Having enough contact hours and follow-up experiences during the school year was slightly less common, according to teachers. Only about two thirds thought they had enough experiences during the year to learn and develop the new skills. This perception is born out in a later portion of the report, which looks at duration and timespan as reported by providers' in their session reports.

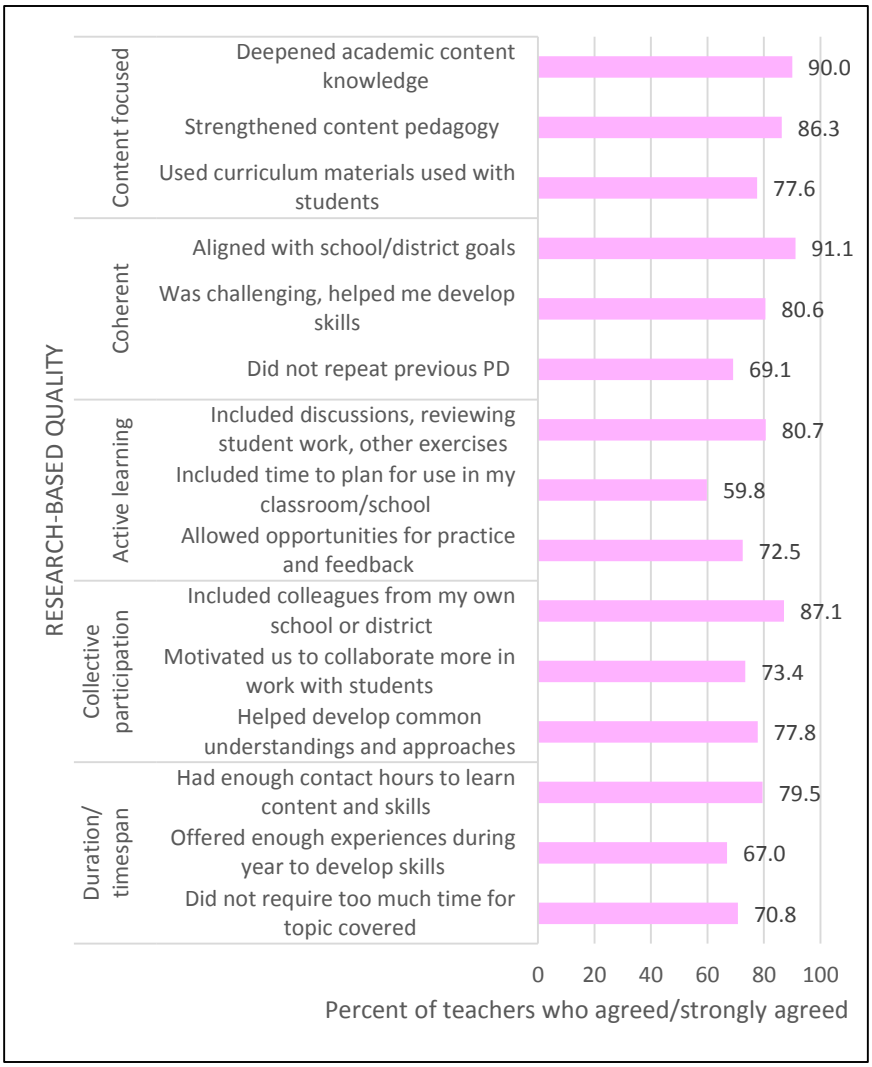


Figure 3. Rate of Agreement Among Teachers That Research-Based Qualities Were Present in Session Attended

Note: There were 2,233 teachers who responded to the survey. Percentages were nearly identical to those shown when looking only at responses from teachers in sessions aligned with Goals 1 and 2. Data source: Teacher respondents to WVBE PD Master Plan Participant Survey 2014-2015

Focusing on differences among provider groups, this time using the composite rates for each of the five qualities, active learning was the research-based PD practice least often present, followed by sufficient duration/timespan. In both cases, RESAs and WVDE scored the lowest, although only slightly (Figure 4). Content focus had the highest rate of agreement, with IHEs topping the list.

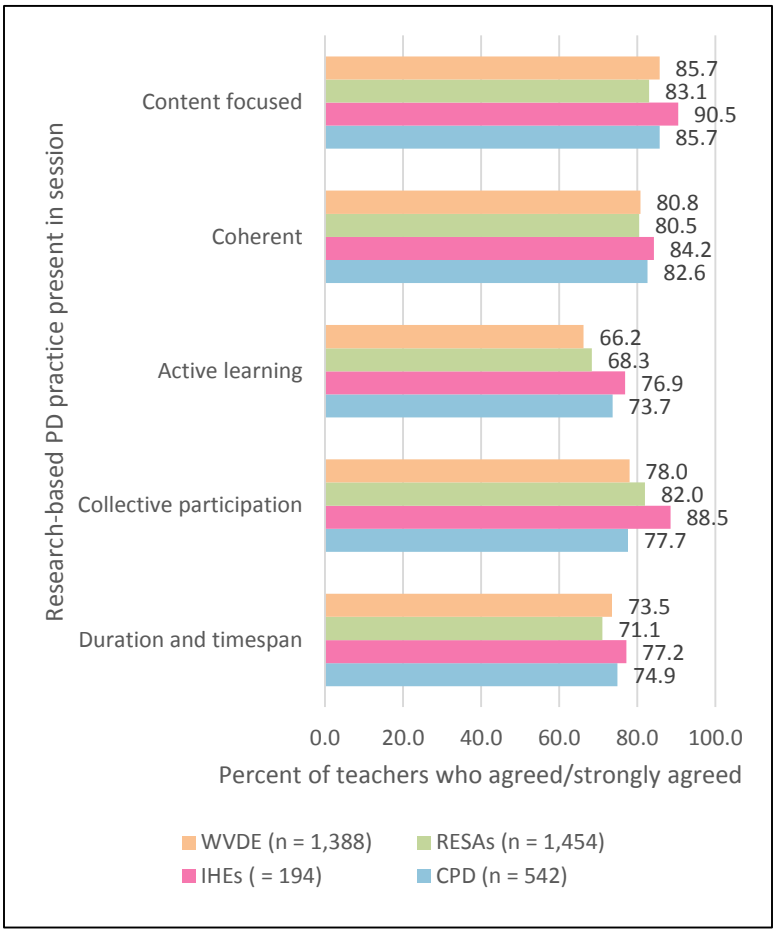


Figure 4. Percent of School-Based Respondents That Agreed or Strongly Agreed That Five Research-Based PD Practices Were Present in the Sessions They Attended by Provider Group

Data Source: School-based respondents to WVBE PD Master Plan Participant Survey 2014-2015

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 PD practices. A more granular look at the survey results—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 provider groups may want to look at in their own planning and conduct of professional learning experiences (Table 4).

The following are the highest- and lowest-scoring items in the survey among teacher respondents (Table 4).

Center for Professional Development

- Highest scores—90% or above—Deepened academic content knowledge; aligned with school/ district goals
- Lowest scores—Included time to plan for implementation in my classroom/school (60.5%); offered enough experiences during school year to develop and apply skills (63.5%)

Institutions of higher education

- Highest scores—90% or above—Deepened academic content knowledge; aligned with school/district goals; included colleagues from my own school or district; strengthened content pedagogy
- Lowest scores—Did not require too much time for topic covered (72.3%); Did not repeat previous PD (70.1%)

Regional education service agencies

- Highest scores—90% or above— Included colleagues from my own school or district; aligned with school/district goals

- Lowest scores—Did not repeat previous PD (68.2%); offered enough experiences during school year to develop and apply skills (63.3%); included time to plan for implementation in my classroom/school (54.7%)

West Virginia Department of Education

- Highest scores—Above 90%— Aligned with school/district goals
- Lowest scores—Did not require too much time for topic covered (69.7%); Did not repeat previous PD (69.5%); Included time to plan for implementation in my classroom/school (63.4%)

Table 4. Percent of Teachers That Agreed/Strongly Agreed the Session They Attended Met This Criteria, by Provider

	Percent agreed/strongly agreed with this item				
The professional development . . .	All (n = 2,233)	CPD (n = 425)	IHEs (n = 137)	RESAs (n = 956)	WVDE (n = 715)
Content knowledge and pedagogy					
Deepened academic content knowledge	90.0	90.4	93.4	89.5	89.8
Strengthened content pedagogy	86.3	88.0	91.2	85.0	86.2
Used curriculum materials used with students	77.6	76.9	86.9	74.1	81.0
Coherence					
Aligned with school/district goals	91.1	92.2	93.4	90.4	91.0
Was challenging, helped me develop skills	80.6	83.8	85.4	78.9	80.0
Did not repeat previous PD	69.1	70.1	70.1	68.2	69.5
Active learning					
Included discussions, reviewing student work, other exercises	80.7	83.8	83.2	80.1	79.2
Included time to plan for implementation in my classroom/school	59.8	60.5	75.2	54.7	63.4
Allowed opportunities for practice and feedback	72.5	75.3	81.0	70.2	72.3
Collective participation					
Included colleagues from my own school or district	87.1	82.6	92.0	91.3	83.4
Motivated us to collaborate more in work with students	73.4	72.7	84.7	73.0	72.3
Helped develop common understandings and approaches	77.8	77.4	85.4	78.5	75.7
Duration and timespan					
Had enough contact hours to learn content and skills	79.5	86.1	86.9	74.2	81.4
Offered enough experiences during school year to develop and apply skills	67.0	63.5	80.3	63.3	71.5
Did not require too much time for topic covered	70.8	73.2	72.3	70.5	69.7

Data Source: School-based respondents to WVBE PD Master Plan Participant Survey 2014-2015

For one of the five research-based PD 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. They also reported 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 PD 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. Duration and timespan have separate effects.

Duration

Looking first at duration, the largest portion (45%) of the participants attended training lasting a half day up to about 2 days; the second most common duration category (26%) was informational sessions, lasting up to 4 hours. Only about 20% of attendees were in sessions lasting the recommended 30 hours or more (Figure 5).

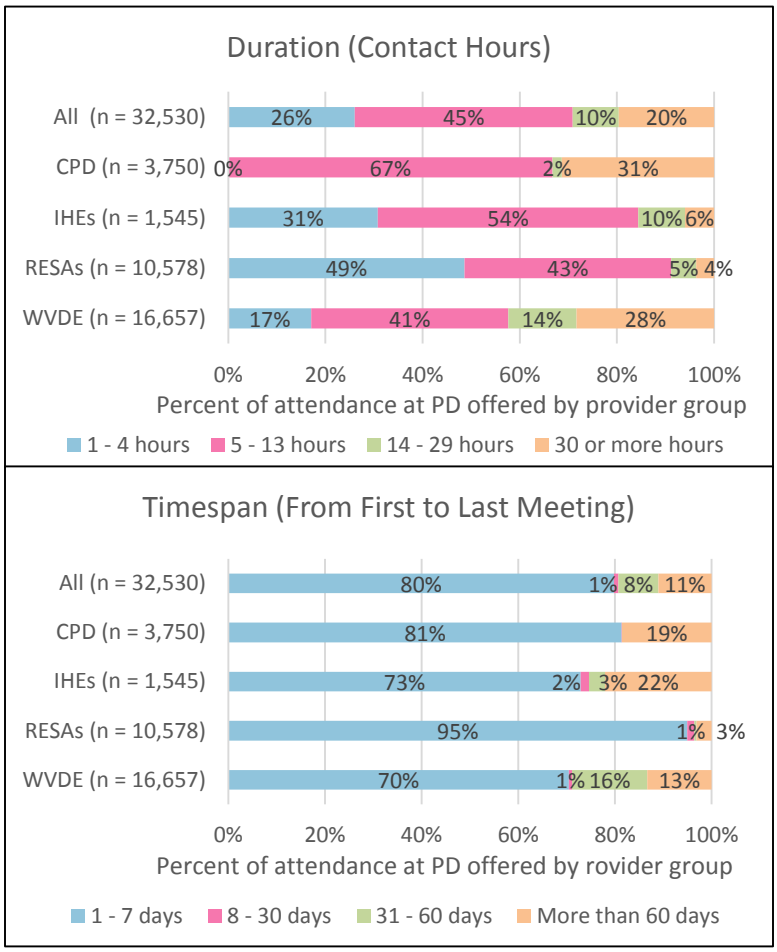


Figure 5. Distribution of Attendees Across Duration and Timespan Categories by Provider Group

Data Source: 2014-2015 PD Master Plan Session Report database

The different provider groups varied considerably. About 31% of attendees at CPD-led sessions and 28% at WVDE-led sessions received 30 or more contact hours. Only 4% of attendees at RESA-led sessions received that number of contact hours (Figure 5), 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 15 and Table 4, page 16).

Looking at individual providers, RESAs 4 and 5 had the highest percentages of participants in sessions lasting 30 or more hours, at 9% and 10% respectively; meanwhile, RESAs 1, 2, and 8 reported no sessions lasting that length of time. Among IHEs, only the June Harless Center at Marshall University reported sessions lasting 30 or more hours, at 16%. Almost a third of CPD's sessions lasted that long. Among WVDE providers, 81% of attendees at Office of Instructional Technology sessions received the recommended level of at least 30 hours of training, while 98% of the attendees at sessions provided by the Office of Institutional Education Programs received 4 or fewer contact hours and 80% of attendees at sessions offered by the Office of Professional Preparation received training of such short duration. For complete results by individual provider, see Figure B 1 (page 38).

Timespan

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 17). Overall, 80% of all participants attended sessions that began and ended within one week.

The breakdown of the number of sessions in the PD Master Plan, number and percent delivered by provider group and individual provider is included in Figure B 2 (page 39). WVDE tended to have the greatest attendance at sessions with longer timespans, with about 39% of their participants attending sessions taking place over at least 31 days, including 13% attending sessions that spanned more than 60 days. Three offices account for this higher level of attendance at sessions with longer durations: The Office of Early Learning, with 60% of their attendees in sessions lasting more than 60 days, the Office of Instructional Technology, with 82% of their attendees in sessions last more than 30 days, and the Office of Professional Preparation with 65% of their attendees in sessions lasting 31–60 days. The remaining eight WVDE offices had 95% to 100% of their participants in sessions lasting a week or less.

Nearly all (95%) of RESA participants attended training that began and ended within one week or less. Among RESAs, RESAs 4 through 8 had at least some participants who were in sessions with the longest timespans (more than 60 days), although it was only 9% or less of their attendees.

About 19% of attendees at CPD events received PD that extended beyond a 60-day timespan. Most of the other received training that took place over a weeklong period or less.

IHEs tended to have participants in session that began and ended within a week or that took place over more than 60 days. The majority (56%) of West Virginia State University participants were in sessions that fell into that category. For complete results by individual provider, see Figure B 2 (page 39).

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 PD 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 WVDE, with CPD coming in second. Looking at individual providers, the top nine were in the WVDE.

Figure 6 Average Number of Collaborations per Session by Provider

This graph shows the overall average number of collaboration per session (top bar), the averages for each of the provider groups (next four bars down), and the averages for each individual provider (remaining bars). Data source: 2014-2015 PD Master Plan Session Report database

Impact

Impact will be examined by addressing the final two evaluation questions related to coverage of the West Virginia Board of Education (WVBE) goals and the 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 PD was in meeting the Board's goals.

Proportion of PD offerings targeting each of the goals overall

About 72% of sessions (n = 815) were focused on Goal 2 and 60% of attendees (n = 19,229). 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 about half or less the duration of sessions focused on Goals 1 and 2 (Table 5).

Table 5. Coverage of Board Goals for Professional Learning

	Goal	Sessions (n = 1,132)	Attendance (n = 32,282)	Duration (average hours)
1.	Increase the knowledge and skills of all early childhood educators to deliver a comprehensive preK through third grade approach to early childhood education that includes a balanced approach to early literacy.	71	3,656	18.1
2.	Increase deep content knowledge and proficiency in designing and delivering standards-driven instruction and assessments for all preK through 12 West Virginia educators.	815	19,229	12.6
3.	Improve leadership competencies for principals and assistant principals in order to support high quality teaching and learning.	153	4,276	5.8
4.	Support the full implementation of the revised educator evaluation system.	93	5,121	8.0

Data source: 2014-2015 PD Master Plan Session Report database

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 WVBE 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 7 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 7 shows a high level of general agreement for Goals 1–3—at least 71%—that the sessions they attended had been helpful. Just over half of respondents thought sessions they attended, which were intended by providers to target Goal 4 had, indeed, been helpful in preparing them to make effective use of the educator evaluation system.

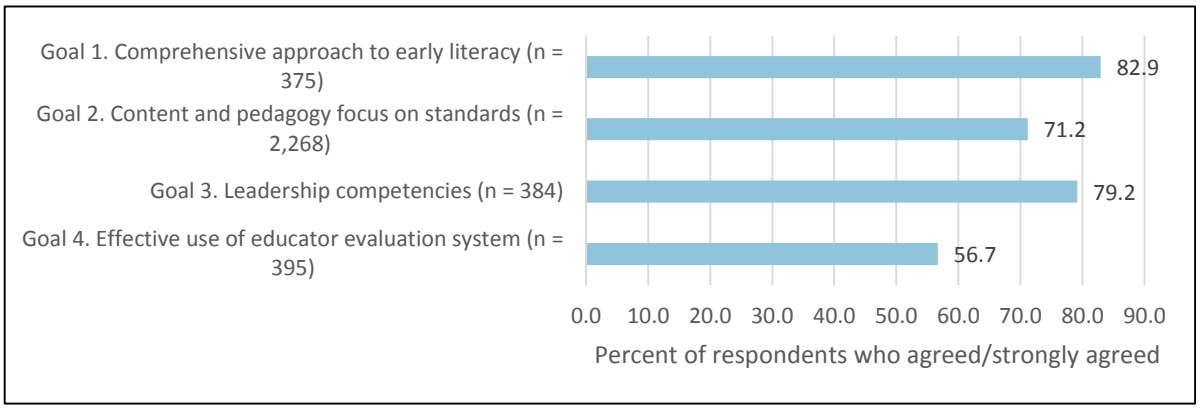


Figure 7. Percent of Respondents Who Agreed or Strongly Agreed That the Session Was Helpful in Meeting the Targeted Board Goal

Source: WVBE PD Master Plan Participant Survey 2014-2015

EQ7. What was the impact of the professional development offered through the 2014-2015 PD Master Plan on educators' knowledge, practice, and attitudes?

We used a retrospective pre-test and 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 (i.e., 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 2.1, 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 6. 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 = 3,400)	1.7	2.4
Practice of behaviors or skills (n = 3,278)	1.8	2.3
Held attitudes and beliefs (n = 3,304)	2.1	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 15 tests we ran—and the great majority of those tests were statistically significant at the $p < .001$ level (see Table B 8, page 40, 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 pre-test and posttest designs, although its interpretation is often debated in social sciences (see the Limitations of the Study section for more about this debate). The guidelines we used for interpreting the meaning of the effect sizes in this study are found in Table 7.

Table 7. Interpretation of Effect Size Estimates Used in this Study

Value for Cohen's d	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 8). This pattern held across the provider groups with a couple of exceptions: CPD saw *very large* effects for knowledge

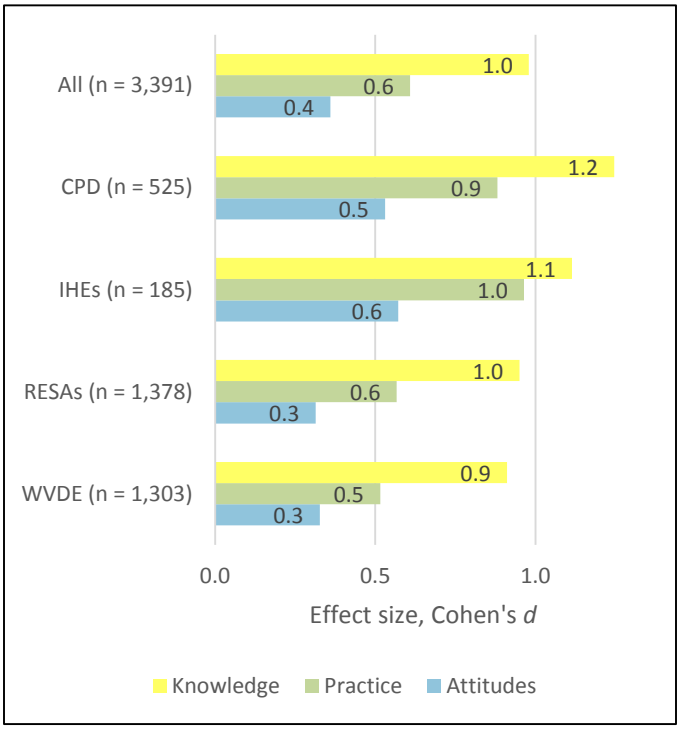


Figure 8. Reported Impact of PD on Knowledge, Practice, and Attitudes by Provider Group

See Table 7 for interpretation of these effect sizes. Data source: WVBE PD Master Plan Participant Survey 2014-2015

compared with the large effects seen by other groups, and large effects for practices compared with the moderate or small effects for the other groups. CPD and IHEs outperformed RESAs and WVDE in having a positive impact on knowledge, practice, and attitudes.

Discussion

Major findings for 2014–2015 include the following, arranged here by effectiveness, efficiency, and impact:

Effectiveness of the Master Plan

- The PD Master Plan included slightly fewer topics in 2014-2015 (434) than the previous year (479) and at 32,530 participants, attendance declined slightly overall compared with the previous year (33,196) This decline was due to lower participation for the Center for Professional Development (CPD), regional education agencies (RESAs), and the West Virginia Department of Education (WVDE); however, with the addition of three more institutions of higher education (IHE) for this year, attendance more than doubled at IHE-provided sessions to 1,545 participants.
- The PD Master Plan was implemented at levels comparable to previous years: overall 81% of sessions planned were delivered during the year.

- Regarding the effectiveness of providers in meeting the West Virginia Board of Education (WVBE) Standards for Professional Learning, overall, the standards that providers most often believed they had met were Standards 3 (Requires prioritizing, monitoring, and coordinating resources for educator learning), 5 (Integrates theories, research, and models of human learning into learning designs to achieve its intended outcomes), and 7 (Aligns its outcomes with educator performance and student curriculum standards). The two standards providers least often reported meeting were Standards 4 (Uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning) and 2 (Requires skillful leadership to develop capacity, advocate, and create support systems for professional learning).
- Regarding the extent to which providers' offerings reflected five research-based PD practices, overall, active learning was the research-based PD practice least often present, followed by sufficient duration/timespan. In both cases, RESAs and WVDE scored the lowest. Content focus had the highest rate of agreement, with IHEs topping the list.
- Providers' session reports seemed to confirm the findings from the participant survey about duration and timespan reported above. Of the 32,530 attendees reported by providers, about 20% (approximately 6,500) participated in PD lasting at least 30 hours; another 10% (approximately 3,250) 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 70% of participants attended sessions ranging from 1 to 13 hours.

Efficiency of the Master Plan

- The Legislature's call for decentralization of PD seems to be reflected in the trends for the four major providers in the PD Master Plan, with the WVDE decreasing its number of offerings and participants from the previous year. RESAs and CPD held fairly steady, while IHEs increased the number of institutions participating from two to five, and doubled the number of participants in IHE-sponsored sessions. Still, the WVDE continued to report the greatest number of both sessions planned and participants in attendance.
- The providers who exercised the greatest degree of collaboration were located in the WVDE, with CPD coming in second. Looking at individual providers, the top nine were in the WVDE.

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 72% of sessions and 60% of attendees.
- The participant surveys showed a high level of general agreement—at least 71%—that the sessions they attended had been helpful in meeting Goals 1–3; however only 57%

of participants in Goal 4-aligned sessions found them helpful to them in advancing toward that goal.

- According to self-reports, the professional development had large effects on educators' knowledge of the PD topic, and moderate effects on their practice and their attitudes/beliefs.

Limitations of the Study

The response rate for the participant survey, 29.1%, was far lower than in previous years, when rates tended to range from 63% to 66%. The low response rate was due largely to the transition to a statewide Outlook Exchange system for email to the large majority of staff at schools, districts, and the WVDE during the first round of surveys, which led to two major impediments. First, many recipients had not fully transitioned to the new system so some were using their former email addresses instead of the new ones. Second, the server settings for Outlook considered email from SurveyMonkey—the system we used to send invitations and record the responses online—to be spam, so messages were blocked.

The participant survey conducted in November-December 2014 and May-June 2015 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 pre-test and 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 pre-test and 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 PD. 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 pre-test, 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 post-test, 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 pre-test. This can lead to problems in analyzing the impact of the PD. For this reason, some researchers advocate for using retrospective pre-test and posttest designs as we did in this study.

Despite this strength of the retrospective pre-test and posttest design, a recent research study conducted by Nimon, Zigarmi, and Allen (2011) found that using traditional pre-test and 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 pre-test and posttest designs when possible and advocate for the implementation of a separate retrospective pre-test 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 PD 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 West Virginia Board of Education's (WVBE) 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 focus on skillful leadership to develop capacity, advocate, and create support systems for professional learning.

With regard to the use of research-based professional development (PD) practices,

- Increase the use of active learning during PD 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 PD in the state, we recommend that the WVBE and the West Virginia Department of Education

- 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 PD providers that aligns with and supports local learning communities working to adopt the Board's Standards for Professional Learning.

References

Blank, R. K., N. de las Alas, and C. Smith. 2008. Does teacher professional development have effects on teaching and learning? Analysis of evaluation finding from programs for mathematics and science teachers in 14 states. Washington, D.C.: Council of Chief State School Officers. Retrieved from http://www.ccsso.org/projects/improving_evaluation_of_professional_development

Carpenter, T. P., Fennema, E., Peterson, P. L., Chiang, C., & Loef, M. (1989). Using knowledge of children's mathematics thinking in classroom teaching: An experimental study. *American Educational Research Journal, 26*(4): 499-531.

Clewell, B. C., Campbell, P. B., and Perlman, L. (2004). *Review of evaluation studies of mathematics and science curricula and professional development models*. Submitted to

the GE Foundation. Washington, DC: The Urban Institute. Retrieved from http://www.urban.org/UploadedPDF/411149.pdf.

Cohen, D. K. & Hill, H. C. (1998). *Instructional policy and classroom performance: The mathematics reform in California*. (CPRE Research Report Series RR-39). Philadelphia PA: Consortium for Policy Research in Education. Retrieved from http://cpre.org/instructional-policy-and-classroom-performance-mathematics-reform-california.

Cohen, D. K. & Hill, H. C. (2001). *Learning policy: When state education reform works*. New Haven, CT: Yale University Press.

Desimone, L., Porter, A. C., Garet, M., Yoon, K. S., & Birman, B. (2002). Effects of professional development on teachers' instruction: Results from a three-year study. *Educational Evaluation and Policy Analysis, 24*(2), 81-112. Retrieved from http://www.pdal.net/inc/docs/Desimone%20et%20al%202002.pdf.

Desimone, L., Smith, T. M., & Phillips, K. J. R. (2013). Linking student achievement growth to professional development participation and changes in instruction: A longitudinal study of elementary students and teachers in Title I schools. *Teachers College Record, 115*(5) [online version].

Desimone, L., Smith, T. M., & Ueno, K. (2006). Are teachers who need sustained, content-focused professional development getting it? An administrator's dilemma. *Educational Administration Quarterly, 42*(2), 179-215.

Doppelt, Y., Schunn, C., Silk, E., Mehalik, M., Reynolds, B., & Ward, E. (2009). Evaluating the impact of a facilitated learning community approach to professional development on teacher practice and student achievement. *Research in Science and Technological Education, 27*(3), 339-354.

Garet, S. G., Porter, A., Desimone, L., Birman, B., & Yoon, K. S. (2001), What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal, 38*(4), 915-945.

Grant, S. G., Peterson, P. L., & Shojgreen-Downer, A. (1996). Learning to teach mathematics in the context of systemic reform. *American Educational Research Journal, 33,* 509-541.

Grigg, J., Kelly, K. A., Gamoran, A., & Borman, G. D. (2013). Effects of two scientific inquiry professional development interventions on teaching practice. *Educational Evaluation & Policy Analysis, 35*(1), 38-56. doi:10.3102/0162373712461851.

Hammer, P. C. (2013). *Creating the context and employing best practices for teacher professional development: A brief review of recent research*. Charleston, WV: West Virginia Department of Education, Division of Teaching and Learning, Office of Research.

Johnson, C., Kahle, J., & Fargo, J. (2007). A study of the effect of sustained, whole-school professional development on student achievement in science. *Journal of Research in Science Teaching, 44*(6), 775–786.

Kennedy, M. M. 1998. *Form and substance in inservice teachers' education* (Research Monograph No. 13). Madison, Wis.: University of Wisconsin-Madison, National Institute for Science Education. Retrieved from http://archive.wceruw.org/nise/Publications/Research_Monographs/vol13.pdf.

Learning Forward (n.d.) Standards for professional learning. Oxford, OH: Author. Retrieved from http://learningforward.org/standards-for-professional-learning#.VEqKF_lzSzk.

Lieberman, A., & McLaughlin, M. W. (1992). Networks for educational change: Powerful and problematic. *Phi Delta Kappan, 74,* 673-677.

McCutchen, D., Abbott, R. D., Green, L. B., Beretvas, S., Cox, S., Potter, N. S., Quiroga, T., & Gray, A. L. (2002). Beginning literacy: links among teacher knowledge, teacher practice, and student learning. *Journal of Learning Disabilities, 35*(1), 69.

Mizell, H., Hord, S., Killion, J., & Hirsh, S. (2011). New standards put the spotlight on professional learning. *JSD–Learning Forward, 32*(4), 10-14.

Moore, D., & Tananis, C. A. (2009). Measuring change in a short-term educational program using a retrospective pretest design. *American Journal of Evaluation, 30*(2), 189 – 202.

Nimon, K., Zigarmi, D., & Allen, J. (2011). Measures of program effectiveness based on retrospective pretest data: Are all created equal? *American Journal of Evaluation, 32*(1), 8-28.

Penuel, W. R., Fishman, B. J., Yamaguchi, R., Gallagher, L. P. (2007). What makes professional development effective? Strategies that foster curriculum implementation. *American Educational Research Journal, 44*(4), 921-958.

Public Works. (2012). Education efficiency audit of West Virginia's primary and secondary education system. West Chester, PA: Author.

Saunders, W., Goldenberg, C., & Gallimore, R. (2009). Increasing achievement by focusing grade-level teams on improving classroom learning: A prospective, quasi-experimental study of Title I schools. *American Educational Research Journal, 46* (4), 1006-1033.

Yoon, K. S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapley, K. (2007). *Reviewing the evidence on how teacher professional development affects student achievement* (Issues & Answers Report, REL 2007–No. 033). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest. Retrieved from http://ies.ed.gov/ncee/edlabs

West Virginia Board of Education. (2013). *Master Plan for Statewide Professional Development: 2013–2014.* Charleston, WV: West Virginia Center for Professional Development.

Appendix A. 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.	◯	◯	◯	◯	◯
	Strengthened my instructional approaches for teaching the content area it covered.	◯	◯	◯	◯	◯
	Used curriculum materials I will be using with my students.	◯	◯	◯	◯	◯
2.	Was relevant to reaching my school or district's goals for student learning.	◯	◯	◯	◯	◯
	Was challenging and helped me develop my skills to a new level.	◯	◯	◯	◯	◯
	Spent too much time repeating concepts I have learned before.	◯	◯	◯	◯	◯
3.	Included opportunities for discussions, reviewing student work, and/or written exercises.	◯	◯	◯	◯	◯
	Included valuable time to plan for implementation in my classroom, school, or district.	◯	◯	◯	◯	◯
	Allowed me opportunities to practice what I was learning and receive constructive feedback.	◯	◯	◯	◯	◯
4.	Included colleagues in my content area, grade, or specialization from my school or district.	◯	◯	◯	◯	◯
	Motivated my colleagues and me to collaborate more in our shared work with students.	◯	◯	◯	◯	◯
	Helped my colleagues and me arrive at a common understanding and approach to instruction.	◯	◯	◯	◯	◯
5.	Had enough contact hours to help me learn the content and skills it encouraged.	◯	◯	◯	◯	◯
	Offered enough experiences during the school year for me to develop and successfully apply new skills.	◯	◯	◯	◯	◯
	Required more of my time than I think was needed for this topic.	◯	◯	◯	◯	◯

Subscales include

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 B 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 re-sponses received	Response rate	95% confidence level, ± % (CI)
Grand Total	16,068	12,299	3,578	29.1	1.4
Provider groups					
Center for Professional Development	2,184	1,308	542	41.4	3.7
Institutions of higher education	726	726	194	26.7	6.0
Regional education service agencies	6,071	5,454	1,454	26.7	2.2
West Virginia Department of Education	7,361	5,085	1,388	27.3	2.4
Individual providers					
Center for Professional Development	2,184	1,308	542	41.4	3.7
Fairmont State University	51	51	13	25.5	23.7
Marshall University Clinical Exp. and PD Schools	159	159	42	26.4	13.0
Marshall University June Harless Center	242	242	65	26.9	10.4
RESA 1	1,587	1,104	268	24.3	5.5
RESA 2	719	684	139	20.3	7.5
RESA 3	648	648	259	40.0	4.7
RESA 4	734	646	178	27.6	6.4
RESA 5	602	602	143	23.8	7.2
RESA 6	504	504	118	23.4	7.9
RESA 7	691	680	171	25.1	6.5
RESA 8	586	586	178	30.4	6.1
West Virginia Schools for the Deaf and Blind	209	209	51	24.4	12.0
West Virginia State University	23	23	13	56.5	18.3
West Virginia University	176	176	42	23.9	13.2
West Virginia University Parkersburg	75	75	19	25.3	19.6
WVDE Office of Assessment and Research	278	278	56	20.1	11.7
WVDE Office of Career and Technical Instruction	234	234	70	29.9	9.8
WVDE Office of Early Learning	111	111	44	39.6	11.5
WVDE Office of Federal Programs	53	53	17	32.1	19.8
WVDE Office of Institutional Education Programs	261	261	31	11.9	16.6
WVDE Office of Instructional Technology	2,494	1,328	435	32.8	4.3
WVDE Office of Professional Preparation	171	171	34	19.9	15.1
WVDE Office of Secondary Learning	1,430	1,066	305	28.6	5.0
WVDE Office of Special Programs	1,846	1,100	345	31.4	4.8

Table cells highlighted in yellow are the only provider groups or individual providers that had large enough pools of respondents to be able to keep the margin of variability (confidence interval) down to ±5% or less, at a 95% confidence level.

Data Source: 2014-2015 PD Master Plan Session Report database

Table B 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	Topics in PD Master Plan	Topics reported as delivered	
		Number	Percent
Total	434	350	80.6
Provider groups			
Center for Professional Development	71	66	93.0
Regional education service agencies	154	128	83.1
Institutions of higher education	31	24	77.4
West Virginia Department of Education	178	132	74.2
Individual providers			
Fairmont State University	2	2	100.0
RESA 2	9	9	100.0
RESA 3	15	15	100.0
RESA 5	16	16	100.0
RESA 6	15	15	100.0
West Virginia State University	2	2	100.0
West Virginia University	5	5	100.0
West Virginia University Parkersburg	1	1	100.0
WVDE Office of School Improvement	2	2	100.0
Center for Professional Development	71	66	93.0
Marshall University June Harless Center	12	11	91.7
WVDE Office of Career and Technical Instruction	30	27	90.0
WVDE Office of Institutional Education Programs	9	8	88.9
RESA 4	15	13	86.7
WVDE Office of Secondary Learning	7	6	85.7
RESA 8	6	5	83.3
RESA 7	27	22	81.5
WVDE Office of Instructional Technology	72	55	76.4
WVDE Office of Professional Preparation (Certification)	4	3	75.0
West Virginia Schools for the Deaf and Blind	7	5	71.4
WVDE Office of Assessment, Accountability, and Research	7	5	71.4
WVDE Office of Special Programs	21	15	71.4
RESA 1	51	33	64.7
Marshall University Clinical Experiences and Professional Development Schools	5	3	60.0
WVDE Office of Early Learning	10	5	50.0
WVDE Office of Federal Programs	4	1	25.0
Glenville State College	4	0	0.0
WVDE Office of Career and Technical Accountability and Support	5	0	0.0

Data Source: 2014-2015 PD Master Plan Session Report database

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

Provider	Data collection periods 1-4: Attendance reported	Data collection periods 1-3 (email addresses required): Attendance reported	Number of participant email addresses provided	Percentage of reported participants for whom email addresses were supplied
All providers	32,530	29,453	25,410	86.3
				Provider groups
Center for Professional Development	3,750	3,750	3,329	88.8
Institutions of higher education	1,545	1,423	978	68.7
Regional education service agencies	10,578	9,707	9,361	96.4
West Virginia Department of Education	16,657	14,573	11,742	80.6
				Individual providers
Center for Professional Development	3,750	3,750	3,329	88.8
Fairmont State University	98	98	57	58.2
Marshall University--Clinical Experiences and PD Schools	194	181	179	98.9
Marshall University--June Harless Center	566	457	280	61.3
RESA 1	2,897	2,680	2,664	99.4
RESA 2	1,195	1,043	1,018	97.6
RESA 3	946	946	933	98.6
RESA 4	1,740	1,500	1,301	86.7
RESA 5	974	938	896	95.5
RESA 6	796	758	743	98.0
RESA 7	1,231	1,133	1,103	97.4
RESA 8	799	709	703	99.2
West Virginia Schools for the Deaf and Blind	262	262	260	99.2
West Virginia State University	62	62	25	40.3
West Virginia University	525	525	355	67.6
West Virginia University Parkersburg	100	100	82	82.0
WVDE Office of Assessment and Research	1,073	1,035	506	48.9
WVDE Office of Career and Technical Instruction	850	805	711	88.3
WVDE Office of Early Learning	923	451	187	41.5
WVDE Office of Federal Programs	104	104	102	98.1
WVDE Office of Institutional Education Programs	750	750	746	99.5
WVDE Office of Instructional Technology	4,801	4,315	3,615	83.8
WVDE Office of Professional Preparation	337	337	285	84.6
WVDE Office of School Improvement	450	450	0	0.0
WVDE Office of Secondary Learning	2,664	2,633	1,313	49.9
WVDE Office of Special Programs	4,443	3,431	2,953	86.1

Data Source: 2014-2015 PD Master Plan Session Report database

Table B 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	**66**	**5**
No explanation provided (5)		
Fairmont State University	**2**	**0**
Glenville State College	**0**	**4**
No explanation provided (4)		
Marshall University Clinical Experiences and Professional Development Schools	**3**	**2**
Staff member with expertise left the organization (2)		
Marshall University June Harless Center	**11**	**1**
Topic was combined with another session.		
RESA 1	**33**	**18**
Session was cancelled due to weather (1)		
There were insufficient registrations (1)		
Topic was combined with another session (3)		
Topic was not requested (14)		
RESA 2	**9**	**0**
RESA 3	**15**	**0**
RESA 4	**13**	**2**
Staff member with expertise left the organization (2)		
RESA 5	**16**	**0**
RESA 6	**15**	**0**
RESA 7	**22**	**5**
Board/department priorities changed (1)		
Budget constraints (1)		
Topic was combined with another session (3)		
RESA 8	**5**	**1**
Staff member with this expertise left/retired (1)		
West Virginia Schools for the Deaf and Blind	**5**	**2**
Board/department priorities changed (2)		
West Virginia State University	**2**	**0**
West Virginia University	**5**	**0**
West Virginia University Parkersburg	**1**	**0**
WVDE Office of Assessment, Accountability, and Research	**5**	**2**
Topic was not requested (2)		
WVDE Office of Career and Technical Accountability and Support	**0**	**5**
No explanation provided (5)		
WVDE Office of Career and Technical Instruction	**27**	**3**
Session was postponed to 2015-2016 (3)		
WVDE Office of Early Learning	**5**	**5**
Session was delivered but not reported (4)		
Session was postponed to 2015-2016 (1)		
WVDE Office of Federal Programs	**1**	**3**
No explanation provided (3)		
WVDE Office of Institutional Education Programs	**8**	**1**
No explanation provided (1)		

WVDE Office of Instructional Technology	**55**	**17**
Session was postponed to 2015-2016 (14)		
There were insufficient registrations (3)		
WVDE Office of Professional Preparation (Certification)	**3**	**1**
No explanation provided (1)		
WVDE Office of School Improvement	**2**	**1**
Session was postponed to 2015-2016 (1)		
WVDE Office of Secondary Learning	**6**	**1**
Session was delivered but not reported (1)		
WVDE Office of Special Programs	**15**	**6**
Other (2)		
Session was postponed to 2015-2016 (2)		
Session was delivered but not reported (1)		
Topic was not requested (1)		

Data Source: Agency staff response to e-mail query, September 2015.

Table B 5. Summary of Provider Explanations for Sessions Not Delivered or Not Reported

Reason	Number of mentions	Total this category
Canceled due to unforeseen circumstances		12
Board/department priorities changed	3	
Budget constraints	1	
Session was cancelled due to weather	1	
Staff member with this expertise left/retired	5	
Other (staff member responsible not hired; cancelled due to testing window)	2	
Cancelled due to lack of interest		20
There were insufficient registrations	4	
Topic was not requested	16	
Provider reporting error		25
No explanation provided	19	
Session was delivered but not reported	6	
Topic postponed or delivered by other means		28
Session was postponed to 2015-2016	20	
Topic was combined with another session	8	

Data Source: Agency staff response to e-mail query, September 2015.

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

	Content knowledge				Content instruction				Used curriculum materials				Responses	Positive responses	
	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA	(n)	(n)	(%)
Administrator/other	1345	0	0	0	1345	0	0	0	1345	0	0	0	0	0	
Teacher	2	2010	174	47	7	1928	193	105	8	1733	285	207	6682	5671	84.9
	Goal alignment				Aligned with training needs				Challenging, did not repeat other PD						
	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA			
Administrator/other	490	763	46	46	359	805	133	48	97	959	237	52	3089	2527	81.8
Teacher	12	2035	127	59	24	1799	345	65	10	1543	588	92	6653	5377	80.8
	Discuss/review student work				Planning for implementation				Practice and feedback						
	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA			
Administrator/other	327	746	154	118	187	657	307	194	222	684	285	154	3299	2087	63.3
Teacher	23	1802	278	130	11	1336	700	186	19	1619	467	128	6646	4757	71.6
	Participation w/colleagues				Motivated collaboration				Developed common understandings						
	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA			
Administrator/other	431	757	84	73	1345	0	0	0	1345	0	0	0	914	757	82.8
Teacher	6	1946	202	79	17	1640	406	170	13	1737	324	159	6663	5323	79.9
	Enough contact hours				Enough experiences during school year				Not too much time for topic covered						
	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA	Skipped	Agree	Disagree	NA			
Administrator/other	304	806	173	62	228	692	217	208	66	1002	203	74	3437	2500	72.7
Teacher	16	1776	361	80	21	1496	496	220	15	1582	539	97	6647	4854	73.0

Content and content pedagogy focused

Coherence with educators' professional needs; school goals; and state standards, curriculum, and assessments

Active learning, including time for planning implementation

Collective participation of educators from the same district, school, grade level, content area, or specialization

Duration and timespan

Notes: Disagree = disagree and strongly disagree; Agree = Agree and strongly disagree; NA = not applicable. Data source: WVBE PD Master Plan Participant Survey 2014-2015

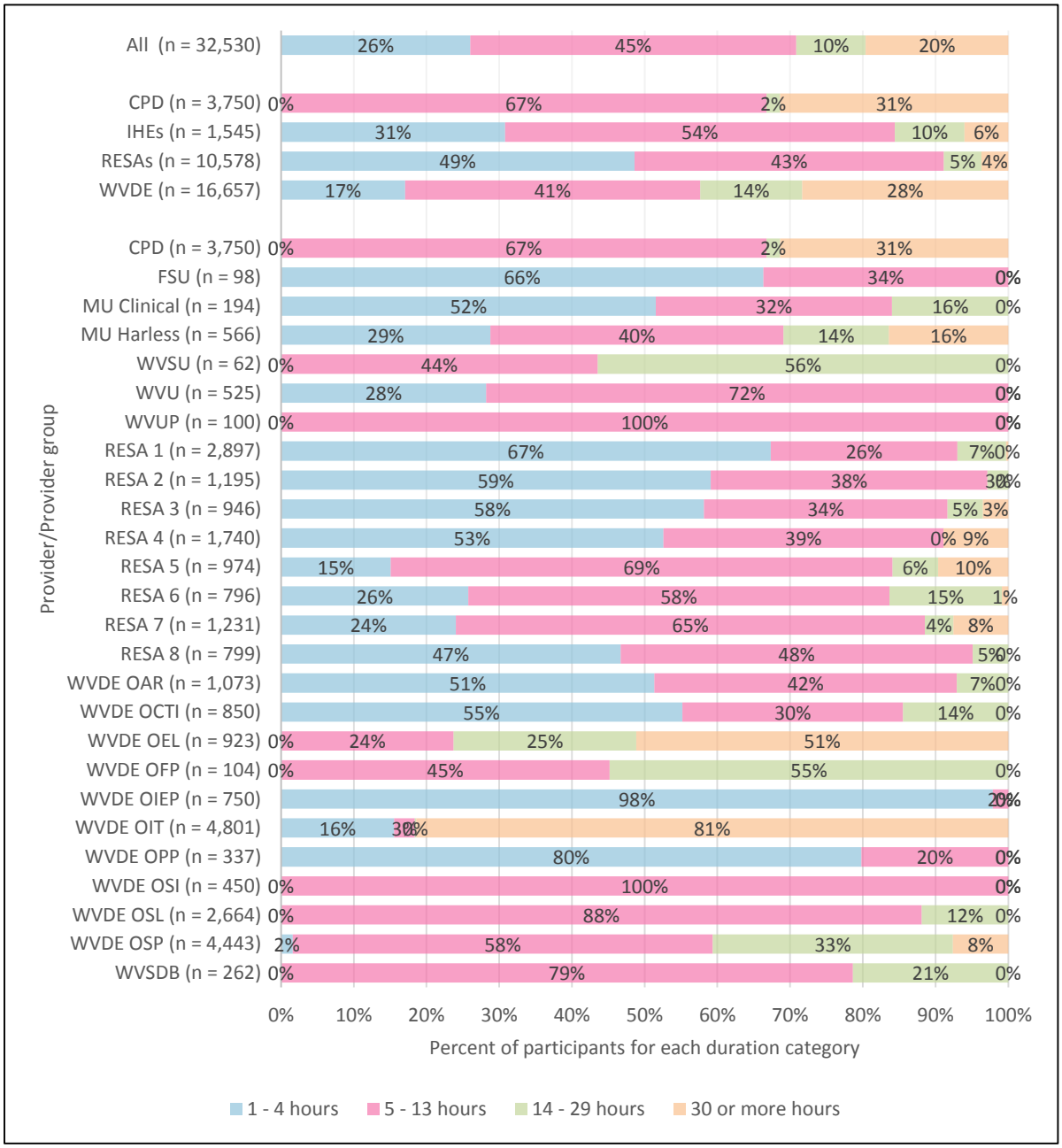


Figure B 1. Duration (Contact Hours) of Professional Development by Individual Provider

All = All providers; CPD = Center for Professional Development; IHEs = Institutions of higher education; RESAS = regional education service agencies; WVDE = West Virginia Department of Education; FSU = Fairmont State University; MU Clinical = Marshall University Clinical Experiences & PD Schools; MU JHC = Marshall University June Harless Center; WVSU = West Virginia State University; WVU = West Virginia University; WVUP = West Virginia University-Parkersburg; WVDE OAR = Office of Assessment and Research; 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; WVSDB = West Virginia Schools for the Deaf and Blind

Data Source: 2014-2015 PD Master Plan Session Report database

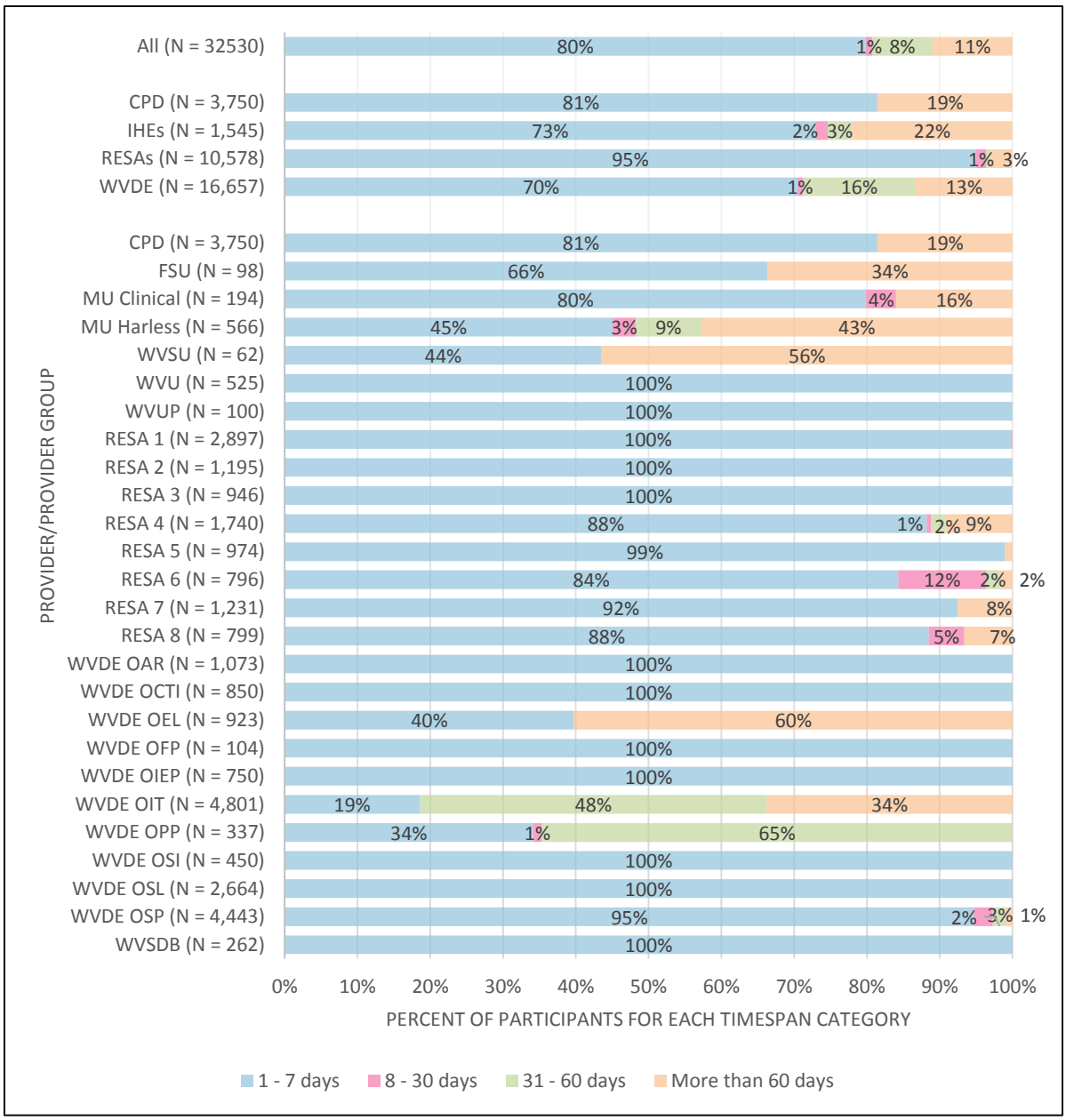


Figure B 2. Timespan (Days from Start to End of Experience) of Professional Development by Individual Provider

All = All providers; CPD = Center for Professional Development; IHEs = Institutions of higher education; RESAS = regional education service agencies; WVDE = West Virginia Department of Education; FSU = Fairmont State University; MU Clinical = Marshall University Clinical Experiences & PD Schools; MU JHC = Marshall University June Harless Center; WVSU = West Virginia State University; WVU = West Virginia University; WVUP = West Virginia University-Parkersburg; WVDE OAR = Office of Assessment and Research; 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; WVSDB = West Virginia Schools for the Deaf and Blind

Data Source: 2014-2015 PD Master Plan Session Report database

Table B 7. 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
	375	100.0	2268	100.0	384	100.0	395	100.0
Not applicable	38	10.1	355	15.7	38	9.9	129	32.7
Strongly disagree	3	0.8	41	1.8	8	2.1	3	0.8
Disagree	23	6.1	258	11.4	34	8.9	39	9.9
Agree	239	63.7	1313	57.9	238	62.0	165	41.8
Strongly agree	72	19.2	301	13.3	66	17.2	59	14.9

Data source: WVBE PD Master Plan Participant Survey 2014-2015

Table B 8. Perceived Impact of Professional Development (Pre/Post) Overall, by Provider Group, and by Individual Provider: Statistical Significance and Effect Size

		Paired differences								
					95% confidence interval of the difference					
Pre/post pairs	N	Mean	Std. deviation	Std. error mean	Lower	Upper	t	df	Sig. (2-tailed)	Cohen's *d*
All providers										
Knowledge	3,391	.63551	.72695	.01248	.61103	.65998	50.907	3,390	.000	1.0
Practice of skills	3,236	.46354	.70430	.01238	.43926	.48781	37.439	3,235	.000	0.6
Attitudes/beliefs	3,277	.29966	.59755	.01044	.27920	.32013	28.708	3,276	.000	0.4
Center for Professional Development										
Knowledge	525	.71619	.73192	.03194	.65344	.77894	22.420	524	.000	1.2
Practice of skills	515	.56311	.73105	.03221	.49982	.62639	17.480	514	.000	0.9
Attitudes/beliefs	516	.38178	.61342	.02700	.32873	.43484	14.138	515	.000	0.5
Institutions of higher education										
Knowledge	185	.71351	.68293	.05021	.61445	.81257	14.211	184	.000	1.1
Practice of skills	176	.65341	.80661	.06080	.53341	.77341	10.747	175	.000	1.0
Attitudes/beliefs	185	.37838	.67370	.04953	.28066	.47610	7.639	184	.000	0.6
Regional education service agencies										
Knowledge	1,378	.61466	.74408	.02004	.57534	.65398	30.665	1,377	.000	1.0
Practice of skills	1,312	.43826	.70576	.01948	.40004	.47649	22.493	1,311	.000	0.6
Attitudes/beliefs	1,328	.27485	.59809	.01641	.24265	.30705	16.747	1,327	.000	0.3
West Virginia Department of Education										
Knowledge	1,303	.61397	.71026	.01968	.57537	.65257	31.203	1,302	.000	0.9
Practice of skills	1,233	.42174	.66736	.01901	.38445	.45902	22.190	1,232	.000	0.5
Attitudes/beliefs	1,248	.28045	.57469	.01627	.24853	.31236	17.240	1,247	.000	0.3

Data source: WVBE PD Master Plan Participant Survey 2014-2015

ONE VOICE
ONE FOCUS
All Students Achieving

West Virginia Department of EDUCATION

Michael J. Martirano, Ed.D.
State Superintendent of Schools