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Photo by Brent Nordgren

Teaching Teachers: Five Features of Effective Teacher Training

MARK A. MATHEWS

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Several years ago I was in a BYU religion class with Joseph Fielding McConkie, during which his PhD dissertation became a topic of discussion. At the request of a student, he summarized his findings on faculty inservice in LDS seminaries in his straightforward way by explaining, “Most of what happens in faculty meetings has no effect on classroom teaching. What has the most impact on teaching in the classroom is not what is said in inservice but what is said ‘at the water cooler’ where teachers informally discuss their lessons.”

We have all had experiences in gospel teaching that seem to confirm this finding that informal conversations about lesson ideas can often be more helpful than the formal teacher training that takes place in faculty inservice and other training meetings. Over the years I have thought about this and wondered what could be done to make teacher training more effective and have a greater impact on teaching and learning. What is it about the experience “at the water cooler” that can make it more effective than the experiences in teacher training meetings? What characteristics or features could we identify

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that might make teacher training more effective at actually improving classroom teaching?

These questions became the basis of my own PhD dissertation as I sought to discover characteristics or features of effective teacher training in LDS Seminaries and Institutes (S&I) faculty inservice.¹ Identifying such features would bless not only the seminaries and institutes but religious education and gospel instruction throughout the Church. The purpose of this article is to summarize what I found by identifying five features of effective teacher training and discussing the frequency with which these features are found in seminary faculty inservice training. These features of effective teacher training have been identified by educational research and are in harmony with gospel principles and the direction from Church leaders. It is hoped that these five features of effective teacher training will not only help guide those responsible for training teachers, but will help all of us as teachers to work together in these training meetings to make them more effective at improving gospel teaching and learning.

Effective Features

Although many professional articles have proposed features for effective teacher training, the first large-scale comparison of the effects of different features of teacher training on teachers' learning was conducted using a nationally representative probability sample (1,027 teachers).² What emerged from this research was a list of several features of effective teacher training: focus on content, active learning, coherence, duration, and collective participation. Further research has continued to support these findings, and there is now enough empirical evidence to suggest a consensus in the field that these features are an important part of effective teacher training.³

Focus on Content

Focus on content refers to concentrating teacher-training efforts on helping teachers learn the material for the course and increase in their knowledge of the subject matter or content that they will be teaching. Although many teacher-training efforts focus on teaching methodology (the "how"), research supports the importance of focusing on content knowledge (the "what") and suggests that teaching strategies and methodology are best taught in connection with specific content rather than as abstract teaching skills unrelated to content. As one set of authors reported, "Teachers do not find generic teacher

training that focuses on teaching techniques without also emphasizing content to be effective."⁴ A number of studies suggest that "teacher's content knowledge is related to the . . . teaching strategies that they use."⁵ This means that the "what" and the "how" of teaching are interrelated and that teacher training on methodology should not be isolated from content. Instead, teacher training is most effective when it focuses on providing specific content knowledge and links that knowledge to specific teaching strategies, providing teachers with what some have termed "content-specific teaching skills."⁶ Simply stated, the greater knowledge a teacher has of the subject matter they teach and of strategies to best teach specific subject matter, the more effectively they are able to teach that subject and the more effectively students are able to learn it.⁷ As a result, the most effective inservice programs will not simply present teaching techniques in the abstract, but will focus on specific subject matter and ways to help students learn specific subject matter.⁸

These findings suggest that content is important to effective teacher training. The "what" matters, not just the "how." This means that in religious education, teacher training that emphasizes teaching techniques independent of scriptural context and doctrinal content will not be as effective or impactful on classroom teaching as those efforts which focus on content knowledge and content-specific teaching skills. Teachers need the knowledge and skills that they can readily apply to the classroom rather than instruction on abstract pedagogy and general methodology that doesn't have a clear and practical use in class. What the Lord explained to Hyrum Smith should guide us in our teacher training: "Seek not to declare my word, but first seek to obtain my word, and then shall your tongue be loosed; then, if you desire, you shall have my Spirit and my word, yea, the power of God unto the convincing of men" (D&C 11:21). One former religious educator has explained:

Many inservice programs get lost in methodology and rarely concern themselves with what is being taught as long as it is being taught well. Teachers who are the product of such training often find themselves giving beautifully packaged gifts which when opened are of slight or passing worth. Might we ask of what value it is if a teacher has high involvement, good discipline, a neat and orderly classroom, but never really teaches anything? What is the value of a well-told story if it carries no message? If that which matters most is not to be at the mercy of that which matters least, the *how* of teaching cannot relegate the *what* of teaching to a place of secondary importance.⁹

Active Learning

Active learning, rather than passively receiving information through a lecture, is another feature that has consistently been identified with effective teacher training in professional development.¹⁰ As one national study confirmed, teachers are more likely to report increased knowledge and skills resulting in changed classroom practice when teacher training provides opportunities for active learning.¹¹ Active learning encourages teachers to be actively engaged in meaningful discussion, planning, and practice by including opportunities such as observing and being observed teaching, developing lesson plans, practicing in simulated conditions, reviewing student work, leading discussions, writing reports, presenting demonstrations, and receiving feedback.¹² Inservice training that uses these active learning activities will be more effective at helping teachers learn new curriculum materials more deeply and will also model the kind of teaching expected in the classroom.¹³

From these findings, we learn that another feature of effective teacher training in religious education is for teachers to be active learners rather than passive observers. Actively engaging teachers in the learning process not only helps them learn the material better through hands-on practice, but it also serves to model the very skills they are expected to use in the classroom. This principle of active learning is in harmony with the direction given to teachers by Elder David A. Bednar. He explained, “Learning by faith cannot be transferred from an instructor to a student through a lecture, a demonstration, or an experiential exercise; rather, a student must exercise faith and act in order to obtain the knowledge for himself or herself.”¹⁴ This is as true when we are teaching teachers as it is when we are teaching students.

Coherence

A third feature of effective teacher training is teachers’ perception that training activities are part of a coherent and integrated program of teacher learning.¹⁵ Coherence measures the alignment and consistency of all training a teacher receives.¹⁶ Teacher-training activities are coherent when they are “consistent with teacher goals, build on earlier activities . . . and involve teachers in discussing their experiences with other teachers and administrators in the school. Activities are also coherent when they support national, state, and district standards and assessments.”¹⁷ Research has confirmed that teacher training is more likely to be effective in improving teachers’ knowledge and skills if it is part of a wider system of consistent and coherent teacher-training

opportunities.¹⁸ On the other hand, many teacher-training efforts have been criticized because they are disjointed and disconnected and “do not form part of a coherent program of teacher learning and development.”¹⁹ When different sources of teacher training and guidance conflict, it can create tension and impede improvement by pulling teachers in competing and inconsistent directions.

From this, it appears that what the Lord requires of his people applies to teacher-training activities as well. “I say unto you, be one; and if ye are not one ye are not mine” (D&C 38:27). Teacher training should seek to be aligned with the direction of Church and curriculum materials. It should also seek to be consistent over time and unified with other training efforts.

Duration

A common criticism of teacher training is that it is too short and provides limited follow-up.²⁰ Reform efforts in education are highly demanding and to implement them well often requires teachers to make big changes to their classroom practice.²¹ As Penuel and his colleagues noted, “Frequently, the result is that teachers either assimilate teaching strategies into their current repertoire with little substantive change or they reject those suggested changes altogether.”²² There is a growing consensus among scholars that to implement such changes requires teacher training to be interactive, to be presented in multiple cycles, and to provide opportunities for application and reflection.²³ To provide such teacher training requires time.

Almost all of the literature on teacher training called for it to be sustained over time. The duration (meaning the length), frequency, and span of teacher-training activities were all linked to intellectual and pedagogical teacher change.²⁴ This is expected because with more time comes more opportunities to learn new content knowledge and skills, try out new classroom practices, and do those things that make teacher training effective, like active learning, focus on subject-area content, and coherence with teachers’ other training experiences.²⁵ It is important to note, however, that “doing ineffective things longer does not make them any better,” and time must be “well organized, carefully structured, purposefully directed, and focused on content or pedagogy or both.”²⁶

Because of the importance of duration in teacher training, consistent teacher training extended over time can be more impactful on classroom teaching than “workshop”-style training activities that aim to teach a new

skill quickly and all at once. This is consistent with the counsel of Elder Bednar, who explained that “steadiness over time is far more effective, far less dangerous, and produces far better results” than an occasional burst of effort. “Consecutive days of fasting, ultimately, may not be as spiritually edifying as successive months of appropriate fasting and worship on the designated fast Sunday. An attempt to pray one time for several hours likely will not produce the same spiritual results as meaningful morning and evening prayer offered consistently over several weeks. And a single scripture-reading marathon cannot produce the spiritual growth of steady scripture study across many months.”²⁷ This principle of the power of small and simple things done consistently over time is equally true in our efforts to train teachers in religious education.

Collective Participation

“There is a growing interest in professional development that is designed for groups of teachers from the same school, department, or grade level.”²⁸ This collective participation with colleagues has several potential advantages. Teachers that work together and teach similar subjects are more familiar with each other, making it more likely that they will engage in discussions of curriculum, concepts, skills, problems, and student needs during their teacher-training experience, allowing them to integrate what they learn together.²⁹ Research supports the importance of collective participation in teacher training.³⁰ For example, one national study found that teacher-training activities that include collective participation “are more likely to afford opportunities for active learning and are more likely to be coherent with teachers’ other experiences,” which leads to increased teacher knowledge and skill and changes in classroom practice.³¹ It should be remembered, however, that there is nothing inherently virtuous about collaboration, and it can hinder progress just as easily as it can hasten it, especially if it meets with conflict in teachers’ beliefs and practices.³² Guskey explained, “For collaboration to bring its intended benefits it, too, needs to be structured and purposeful, with efforts guided by clear goals for improving student learning.”³³

These findings support collective participation as another feature of effective teacher training in religious education. This is consistent with the direction from the Lord, who invited us in learning settings to “let one speak at a time and let all listen unto his sayings, that when all have spoken that all may be edified of all” (D&C 88:122). When teachers of the same faculty (or

ward or missionary district) discuss teaching and learning together, they are edified by this collective participation that cannot happen as effectively in large group settings or with unfamiliar teachers of different subjects.

The Study

To measure how frequently S&I faculty inservice meetings implement these features of effective teacher training, a survey was created and piloted. This survey measured teacher reports of how often each of the five features of effective teacher training (content focus, active learning, coherence, duration, and collective participation) was being used in faculty inservice training. The items created to measure these features included five-point Likert scales ranging from “never” to “very often” and six-point Likert scales ranging from “strongly disagree” to “strongly agree.” The survey was administered online to a random sample of 200 full-time LDS seminary teachers from large faculties.³⁴ Of the 200 teachers surveyed, 140 participated and completed the survey, allowing the study to achieve a response rate of 70 percent. Descriptive statistics were used to measure the frequency and variation of these five features of teacher training in LDS seminary faculty inservice. Descriptive statistics were also used to provide information about the perceived outcomes of teacher training in faculty inservice. Correlational statistics were used to explore the relationship between the five features of effective teacher training and the reported outcomes of S&I teacher inservice training.

The Results

Descriptive statistics revealed the moderate frequency (typically reported to be between “sometimes” and “often”) of the five features of effective teacher training. Descriptive statistics also measured outcomes of inservice training, with teachers reporting a perceived moderate effectiveness, moderate frequency of increasing in knowledge and skills, moderate frequency of applying knowledge and skills to the classroom, and moderate frequency of perceived impact on student learning. Descriptive statistics revealed generally moderate agreement that inservice directly prepares teachers to accomplish S&I objectives. Statistically significant strong and moderate correlations provided support for the five features being linked to effective teacher training in LDS seminaries.

Discussion

The primary question my dissertation sought to answer was how frequently these five features of effective teacher training are being used in faculty inservice meetings in LDS seminaries. The simple answer is that they are generally being implemented with moderate frequency in faculty inservice training, but could be implemented more frequently to achieve greater impact on improving classroom teaching and learning.

Content Focus

Focus on content knowledge and content-specific teaching skills were confirmed as a key feature of effective teacher training, although teachers reported receiving this form of training only “sometimes.” Teachers reported that they preferred (70 percent) content-specific teaching skills over abstract teaching techniques, but reported actually being trained in generic teaching skills more frequently than content-focused subjects. Teachers also overwhelmingly favored (86 percent) studying doctrines from an upcoming scripture block over topical study of basic doctrines. When asked to compare the impact of training on teaching methods (the “how”) with training on subject-matter content (the “what”), teachers were divided, with half preferring training in teaching methods and half preferring training in subject-matter content.

These findings suggest a number of things. First, teachers reported a greater impact on their teaching from inservice that is focused on content and content-specific teaching methodology, confirming the findings of professional development literature.³⁵ Second, teachers found it helpful for inservice training on content and teaching skills to be specific to a scripture block (a chapter or section of scriptural text). This finding is likely influenced by seminary curriculum, which is based on sequential scripture teaching rather than topical lessons on gospel subjects. As a result, inservice training that is specific to an upcoming scripture block is likely viewed as more relevant and useful to teachers as they prepare lessons. These findings also indicate that teachers are split between which focus of inservice they find more influential on teaching practice, subject matter content or teaching methodology, suggesting that teachers prefer a balance between the “what” and the “how” and that training that focuses exclusively on one and neglects the other will be perceived as less effective. These findings combine to suggest that inservice training that is most effective will blend subject matter content

and teaching methodology by teaching content and content-specific teaching methods for a specific scripture block rather than abstract teaching skills or general doctrinal topics. In other words, training is most impactful when it mirrors the experience teachers have in the classroom teaching a specific block of scripture. This suggests that one way seminary teacher training could improve is by focusing on content and content-specific teaching skills.

Active Learning

Actively learning, rather than passively receiving information in lecture format, is another feature of effective teacher training that this study examined. Teachers reported that they generally agreed, or at least somewhat agreed, that faculty inservice was characterized by active learning rather than a lecture-style approach, although less so in summer inservice. One form of active learning that was consistently reported as being frequent was group discussion. However, other forms of active learning like practicing teaching skills, teachers leading inservice, and teachers sharing lesson ideas, were reported on the survey to only happen “sometimes.” Other forms such as observing teachers in the classroom, teachers planning inservice, reviewing student work, and preparing lessons together were reported to happen only “rarely.”

These findings indicate that seminary teachers generally agree with previous research regarding the effectiveness and importance of active learning in faculty inservice and would like to see it increase. While levels of group discussion appear to be sufficiently high, other forms of active learning are quite low. This suggests that seminary inservice could improve active learning by allowing teachers to observe and be observed in the classroom, collaborate with other teachers, review student work, practice teaching skills, and prepare and lead teacher inservice.

Coherence

A third feature of effective teacher training is the extent to which teachers perceive training activities to be part of an integrated and coherent program of teacher learning. In this study, teachers reported that they “somewhat agreed” that faculty inservice was consistent and connected and that it built on previous inservice training “sometimes.” These findings suggest that seminary teacher-training efforts lack strong coherency and that one way faculty inservice could improve is through a more coherent and correlated plan for teacher development. By implementing a more coherent approach, faculty inservice

will hopefully attain a greater sense of purpose and increase in teacher retention of knowledge and skills.

Duration

A common criticism of professional development is that it is too short and provides limited follow-up. An unpublished study for S&I reported that faculty inservice generally occurred weekly for one to two hours.³⁶ As a result, this study did not ask about frequency or length but instead asked questions regarding the preparation and follow-up of faculty inservice. Results indicated that teachers were invited to prepare in advance for faculty inservice quite frequently, between “sometimes” and “often.” However, follow-up to inservice activities was quite low, occurring between “rarely” and “sometimes.” These findings suggest that there is a low level of follow-up to teacher training and that one way faulty inservice can improve is by increasing the amount of follow-up on the training teachers receive.

Collective Participation

Collective participation refers to training designed for teachers from the same school, department, or grade level and is another feature of effective teacher training. Since seminary teachers all teach the same subject every year, collective participation happens naturally when inservice training is limited to a faculty-only setting. In this study, teachers reported receiving faculty-only inservice training “often” during the school year but only “sometimes” during the summer. They also reported that the arrangements that they felt were most effective at fostering teacher learning were faculty-only (49 percent) and multi-faculty (44 percent), but not the whole area. Only a small percentage of teachers (7 percent) felt that inservice that included the whole area together was most effective at fostering teacher learning. These findings indicate a general agreement among teachers regarding the importance of collective participation in teacher training and suggest that the effectiveness of faculty inservice could improve if inservice, particularly summer inservice, occurred less frequently as a whole area and more frequently in single-faculty and multi-faculty settings where more collective participation could take place.

Recommendations

The primary implication of the findings of this study is that to improve the effectiveness of teacher training in LDS seminaries, faculty inservice activities should increase the frequency of the five features of effective teacher training analyzed in this study (content focus, active learning, coherence, duration, and collective participation). However, these findings have broader application than the seminaries and institutes and provide principles that can be applied to teacher-training efforts throughout the Church. The following are recommendations for what could be done to increase the frequency of these features in teacher-training activities in LDS seminaries and other teaching and learning settings in the Church.

The first recommendation is to teach doctrines and principles from the scriptures during teacher-training activities just as teachers would be expected to teach them to their students. In other words, teacher training should simply model the curriculum. In S&I and other Church education settings this means teaching scripture blocks (chapters or sections of scripture that are part of the curriculum) during faculty inservice training. For training teachers called to teach the youth in Church, this would mean modeling a lesson from the *Come, Follow Me* curriculum. Such a simple approach to training activities could help increase the frequency of each of the five features of effective teacher training. For example, teaching doctrines and principles from the scriptures according to Church and S&I curriculum would focus training activities on content and would model content-specific teaching skills, ensure active learning rather than passive listening, be more coherent because it would systematically and sequentially cover the scriptural text and content for the course, offer more follow-up in duration, and provide collective participation if done consistently in a faculty- or ward-sized setting. This approach would not only increase the five features of effective teacher training, but also provide directly relevant and useful training for teachers. As one seminary teacher in this study summarized, “Instead of teaching us teaching techniques or lecturing us . . . just [open] up the scriptures and [teach] us. . . . Instead of talking about teaching—teach, even in inservice. If every inservice was someone teaching a scripture block, I’d love it.”

The second recommendation would be to increase the opportunities for teachers to observe classroom instruction that models Church and S&I curriculum and objectives. Observing teachers is one of the most effective forms of active learning, according to teacher reports in this study and

previous research studies.³⁷ The first recommendation of teaching doctrines and principles from the scriptures could provide one opportunity to observe effective teaching being modeled, but S&I administrators could also encourage seminary and institute teachers to observe faculty members and other selected teachers from the area that exemplify S&I teaching objectives in classroom instruction. Likewise, department chairs at Church schools like BYU and local Church leaders could encourage their teachers to observe effective teaching modeled in their respective faculties and wards. Teachers could also observe effective classroom teaching indirectly through video clip examples made available on Church websites like lds.org and si.lds.org. Through video examples, leaders and administrators could ensure that the teaching conforms with Church and S&I standards and teachers could view these videos at their convenience without having to miss class or travel. Teacher-training activities for faculties and wards could also watch and analyze these video clips of teaching and learning together in order to gain new knowledge and skills. One seminary teacher from this study summarized it well when he explained, “I think some of the best inservice training is watching others teach. I am sad that our area no longer provides an opportunity for us to visit other classes. I would much rather take one day a term or semester and visit and observe many teachers than sit in a desk for an hour after school and hear a lecture. That would be much more beneficial.”

A third recommendation from this study would be to provide more follow-up to teacher training. For example, if seminary faculty inservice training were focused on teaching an upcoming scripture block, teachers could share their experiences at the next inservice meeting or informally after school. Also, if there was a specific area teachers were trying to improve, the seminary principal or ward Sunday School president could observe individual teachers and discuss with them their progress in this area. Follow-up could be particularly beneficial in seminary with the S&I Basic Doctrines Test. Faculties could discuss the results together in inservice, set goals for improvement, and follow up together on their efforts in teaching and learning basic doctrines. Follow-up is essential to teacher-training effectiveness, otherwise, as one teacher in this study expressed, it is “not held consistently enough with meaningful follow-up to help us make much of a change.”

A fourth recommendation is that in order to implement these three recommendations for more effective teacher training, those who have the task of training teachers should be qualified to provide leadership in improving

teaching and learning. In LDS seminaries, teacher training is provided primarily by the seminary principal in weekly faculty inservice meetings. Because of their responsibility to train and teach other teachers, seminary principals should be among the most effective teachers in S&I and ought to receive extensive training in their role as faculty inservice providers. However, there is growing evidence that seminary principals are not receiving adequate training or oversight in their roles.³⁸ Many of the teachers surveyed expressed the view that teacher training in seminary is only as good as the principal administering it. This same principle applies also to ward and stake Sunday School presidencies and other Church leaders and religious educators who have the task of training teachers in the Church: they should be effective teachers themselves and well qualified for these assignments.

Seminary faculty inservice has potential for improved effectiveness, as does teacher training throughout the Church. These proposed recommendations offer ways for increasing the frequency of five features of effective teacher training. By teaching doctrines and principles from the scriptures according to the curriculum, providing more opportunities to observe effective teaching in class and online, and providing more follow-up, teacher training will increase in these five features of effective teacher training and have a greater impact on teaching and learning in LDS seminaries and other Church settings. For these changes to be implemented, however, S&I principals and those with similar responsibilities to train teachers must be qualified and prepared to provide effective teacher training. **RE**

Notes

1. See Mark A. Mathews, “A Descriptive Analysis of the Effectiveness of Faculty Inservice in Latter-day Saint (LDS) Seminaries” (PhD diss., Utah State University, 2012).
2. See M. S. Garet, A. C. Porter, L. Desimone, B. F. Birman, and K. S. Yoon, “What Makes Professional Development Effective? Results from a National Sample of Teachers,” *American Educational Research Journal* 28 (March 2001): 915–45.
3. See L. M. Desimone, “Improving Impact Studies of Teachers’ Professional Development: Toward Better Conceptualizations and Measures,” *Educational Researcher* 38, no. 3 (April 2009): 181–99.
4. B. F. Birman, L. Desimone, A. C. Porter, and M. S. Garet, “Designing Professional Development That Works,” *Educational Leadership* 57, no. 8 (2000): 30.
5. W. R. Penuel, B. J. Fishman, R. Yamaguchi, and L. P. Gallagher, “What Makes Professional Development Effective? Strategies That Foster Curriculum Implementation,” *American Educational Research Journal* 44, no. 4 (2007): 930.
6. See Garet et al., “What Makes Professional Development Effective?,” 924.

7. See H. C. Hill, "Teachers' Ongoing Learning: Evidence from Research and Practice," *Future of Children* 17, no. 1 (2007): 111–28; H. C. Hill, B. Rowan, and D. L. Ball, "Effects of Teachers' Mathematical Knowledge for Teaching on Student Achievement," *American Educational Research Journal* 42, no. 2 (2005): 371–406; and M. Kennedy, *Form and Substance in Teacher Inservice Education* (Madison, WI: National Institute for Science Education, University of Wisconsin–Madison, 1998).
8. See Gareth et al., "What Makes Professional Development Effective?," 915–45; T. R. Guskey, "Analyzing Lists of the Characteristics of Effective Professional Development to Promote Visionary Leadership," *NASSP Bulletin* 87 (December 2003): 4–20; and A. C. Porter, M. S. Gareth, L. Desimone, K. S. Yoon, and B. Birman, *Does Professional Development Change Teaching Practice? Results from a Three-Year Study* (Washington, DC: US Department of Education, 2000).
9. Joseph Fielding McConkie, *Teach and Reach* (Salt Lake City: Bookcraft, 1975), 4.
10. See Birman et al., "Designing Professional Development That Works," 28–33; Gareth et al., "What Makes Professional Development Effective?," 915–45; Guskey, "Analyzing Lists of the Characteristics of Effective Professional Development," 4–20; Penuel et al., "What Makes Professional Development Effective?," 921–58; and Porter et al., *Does Professional Development Change Teaching Practice?*
11. See L. M. Desimone, A. C. Porter, M. S. Gareth, K. S. Yoon, and B. Birman, "Effects of Professional Development on Teachers' Instruction: Results from a Three-Year Longitudinal Study," *Educational Evaluation and Policy Analysis* 24, no. 2 (2002): 81–112.
12. Birman et al., "Designing Professional Development That Works," 31.
13. See Penuel et al., "What Makes Professional Development Effective?," 921–58.
14. David A. Bednar, "Seek Learning by Faith," *Religious Educator* 7, no. 3 (2006): 5.
15. See Gareth et al., "What Makes Professional Development Effective?," 915–45.
16. See Penuel et al., "What Makes Professional Development Effective?," 921–58.
17. Birman et al., "Designing Professional Development That Works," 31.
18. See Birman et al., "Designing Professional Development That Works," 28–33; Gareth et al., "What Makes Professional Development Effective?," 915–45; Desimone et al., "Effects of Professional Development," 81–112; Guskey, "Analyzing Lists of the Characteristics of Effective Professional Development," 4–20; Penuel et al., "What Makes Professional Development Effective?," 921–58; and Porter et al., *Does Professional Development Change Teaching Practice?*
19. Gareth et al., "What Makes Professional Development Effective?," 927.
20. See T. R. Guskey and K. S. Yoon, "What Works in Professional Development?," *Phi Delta Kappan* 90 (March 2009): 495–500.
21. See B. Crawford, "Embracing the Essence of Inquiry: New Roles for Science Teachers," *Journal of Research in Science Teaching* 37 (2000): 916–37.
22. Penuel et al., "What Makes Professional Development Effective?," 929.
23. See Penuel et al., "What Makes Professional Development Effective?," 921–58.
24. See J. A. Supovitz and H. M. Turner, "The Effects of Professional Development on Science Teaching Practices and Classroom Culture," *Journal of Research in Science Teaching* 37 (2000): 963–80.
25. Birman et al., "Designing Professional Development That Works," 30. See also Gareth et al., "What Makes Professional Development Effective?," 915–45, and Guskey and Yoon, "What Works in Professional Development?," 495–500.
26. Guskey and Yoon, "What Works in Professional Development?," 497.

27. David A. Bednar, "Steadfast and Immovable, Always Abounding in Good Works," *New Era*, January 2008, 5.
28. Gareth et al., "What Makes Professional Development Effective?," 922.
29. See Gareth et al., "What Makes Professional Development Effective?," 915–45.
30. See Birman et al., "Designing Professional Development That Works," 28–33; Gareth et al., "What Makes Professional Development Effective?," 915–45; Desimone et al., "Effects of Professional Development," 81–112; and Porter et al., *Does Professional Development Change Teaching Practice?*
31. Birman et al., "Designing Professional Development That Works," 30.
32. See B. Achinstein, "Conflict amid Community: The Micropolitics of Teacher Collaboration," *Teachers College Record* 104 (2002): 421–55.
33. Guskey, "Analyzing Lists of the Characteristics of Effective Professional Development," 12.
34. For more information on this dissertation study, see Mathews, "A Descriptive Analysis of the Effectiveness of Faculty Inservice in Latter-day Saint (LDS) Seminaries."
35. See Gareth et al., "What Makes Professional Development Effective?," 915–45.
36. S&I permitted me to view this report as I prepared my dissertation.
37. See Birman et al., "Designing Professional Development That Works," 28–33.
38. See E. W. Johnson, "A Qualitative Study of Seminary Principals for The Church of Jesus Christ of Latter-day Saints" (EdD diss., Utah State University, 2008).