

PreK-12 Teachers as Learners: How They Can Get the Most Out of Professional Development

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Abstract

Effective professional development is crucial to maximizing the performance potential of PreK-12 teachers and, thus, improving education for children. The design and delivery of professional development in PreK-12 schools throughout the country are constantly under scrutiny regarding how it can maximize effectiveness. Concurrently, PreK-12 teachers need to maximize their learning skills to get the most out of professional development. Understanding and being able to apply key learning concepts and processes will significantly aid teachers in learning more efficiently (time spent) and effectively (retention of knowledge). Retrieval practice, elaboration, proper use of prior knowledge, extracting, constructivism, generative learning, massed practice, distributed practice, interleaving, and metacognition are concepts and processes that aid teachers in maximizing their learning and, in turn, improving education for children.

Keywords: mastering learning concepts and processes, teachers

Context

“There is an emerging international consensus that more powerful professional learning opportunities are needed to enable teachers to become the best teachers they can be” (Stewart, 2018, p. 30).

PreK-12 teachers are frequently placed in the situation of being a learner through district and school-based professional development activities and their self-initiated learning endeavors. It is crucial for teachers to constantly seek growth in their knowledge, skills, and competencies for self-satisfaction, career enhancement, and improving education for children. Teachers play such a critical role in the development of this nation’s youth and, thus, the economic, social, and political well-being of the nation.

Being able to utilize learning concepts and processes efficiently (time spent) and effectively (retention of knowledge) is critical to teachers' careers for meeting the skills and competency needs for their present position, and growth for career sustainability and development. With focused attention, teachers can become better at learning because "learning is an acquired skill" (Brown, Roediger, & McDaniel, 2014, p. 2). This article presents strategies that teachers can use to master learning concepts and processes that will aid in professional growth, avoid becoming obsolete, and most importantly enhance education for children.

Responsibilities of the Teacher for Learning

"The responsibility for learning rests with every individual" (Brown et al., 2014, p. xi). The individual characteristics which teachers bring to the learning environment significantly influence how well they learn. Dana (2018) points out, though, that teachers often fall prey to "the zero-learning zone" which is described as "whenever we act, consciously or unconsciously, in ways that block our own learning" (p. 21). To avoid the zero-learning zone, teachers need to regularly assess themselves concerning self-efficacy, goal orientation, and motivation to learn to maximize their learning (Salas, Tannenbaum, Kraiger, & Smith-Jentsch, 2012).

Self-efficacy means that teachers have the confidence and resilience to be successful at learning. This encompasses being conscientious, having a positive attitude, and possessing a belief that, even when learning is extremely challenging, they will master the knowledge and convert it to skills and competencies.

Goal orientation "is the mental framework that one [a teacher] uses to interpret and then shape how to behave in learning-oriented environments" (Salas et al., 2012, p. 84). Specifically, this means teachers:

- (1) Seek to acquire new skills and master any novel situations.
- (2) Exert sufficient effort to learn and are adaptive at using a variety of strategies to be successful.
- (3) Fixate on the learning task with a laser-like focus.
- (4) Have an openness to explore the unknown and be willing to take risks and learn from their mistakes.
- (5) Achieve the desired learning outcomes. (Salas et al., 2012, p. 84)

Motivation to learn is indicative of teachers having a focus directed on what to learn, sufficient effort to complete the learning activities, a sincere interest in learning the content, and the persistence and perseverance to successfully complete the learning activities (Salas et al., 2012, p. 84). Motivation encompasses the popular concept of *grit*—unwavering passion, perseverance, consistency, interest, and effort to achieve a goal (Duckworth, 2016; Crede, 2018; Baker as cited in Weintraub, 2018).

Sources for Learning

It's not hard to see that the field of teacher professional development is in a period of transition—perhaps even confusion. There's long been a growing consensus that conventional go-to PD methods such as workshops and in-service presentations are of

questionable value (even as they remain widely in use). Even some of the newer, more collaborative PD vehicles like professional learning communities have seen waning enthusiasm, due primarily to disjointed implementation and lack of clarity. (Rebora, 2018, p. 7)

Just as professional development activities and delivery systems need to be enhanced, so does the knowledge and skills regarding how teachers can get the most out of professional development that need to be enhanced. There are three major sources for PreK-12 teachers to utilize to enhance learning: (1) district and school-sponsored activities; (2) “outside” formal sources (e.g., professional associations, universities, and commercially-sold products); and (3) informal learning initiated by teachers at any time in their lives. Within these three sources, the delivery systems for learning can be in many forms (e.g., traditional face-to-face, total E-learning, a blending of the preceding two, readings, social media, and unstructured interactions with colleagues and associates).

Greco (2016) notes the crucial role that networks can play in a teacher’s learning, observing that “professional networks are leveraged for collaborative learning” (p. 72). Computer-Supported Collaborative Learning (CSCL) is a networking vehicle that focuses on applying information and communication technologies to facilitate collaborative learning. CSCL specifically addresses “how technologies can facilitate group learning processes, knowledge sharing, and co-construction” to enhance teachers’ learning (Wang, Kirschner, & Tsai, 2018, p. 800). Vroom (2017) advocates the use of Professional Learning Networks (PLN) “to harness the power of personal professional growth” for teachers (p. 53).

According to Rebora (2018), the digital revolution (e.g., E-learning) is particularly attractive because it has “decentralized learning” for teachers and personalized it as described via Computer-Supported Collaborative Learning (CSCL). Micro-credentialing—formal certification of mastery—is becoming popular in the context of E-learning training. Rodman (2018) advocates the use of both “shared learning experiences (conventional workshops and in-service) and “personalized learning” via digital E-learning (p. 13). Jones (2018) believes that we must “put flexibility first” to enhance teachers’ use of meaningful staff development (p. 38). Digital-based E-learning provides this flexibility and is amenable to individualization for targeted needs of each teacher.

The amount of control teachers have over their learning processes varies depending on how the learning source is used and how the instructional delivery system is designed. Hence, the application of the learning concepts and processes within control of the teacher will also vary. The point is that whenever teachers have the opportunity to influence or control their learning situations to utilize the learning concepts and processes presented in this article, they are encouraged to do so to maximize the efficiency (time spent) and effectiveness (retention of knowledge) of their learning.

Basics of Learning

Learning requires the input of new information—content—to acquire knowledge that can be internalized by teachers for understanding and being converted into an application on their present jobs and to develop attributes for career growth. Acquiring knowledge through learning new content is of minimal use unless the PreK-12 teacher can convert it into demonstratable skills and competencies and know when, and how, to utilize these new skills and competencies

to improve education for children.

Once new information is acquired in the form of knowledge, learning requires memory and *retrieval practice*—recall from memory—to keep it usable. Tokuhama-Espinosa (as cited in Heller, 2018/2019) notes that: “It is easier to retrieve memories when facts and skills have been embedded in individually relevant and meaningful contexts” (p. 29). Retrieval practice gives a teacher feedback—knowledge of results—regarding the accuracy of understanding a knowledge piece and aids in solidifying and expanding knowledge (Tokuhama-Espinosa as cited in Heller). The effectiveness of retrieval practice, though, is impacted by “the interactive effect of to-be-learned materials and individual differences in the learner” (Minear, Coane, Boland, Cooney, & Albat, 2018, p. 1,474).

Retrieval practice by teachers *interrupts forgetting* the new information and ingrains it in memory. Making mistakes when learning is not necessarily bad if the erroneous information is accurately corrected. In fact, “Making mistakes and correcting them builds the bridges to advanced learning” (Brown et al., 2014, p. 7).

Memory of new information is enhanced through *elaboration*, which is the process of teachers giving meaning to the new information by expressing the new knowledge in their own words *and* connecting it with their related *prior knowledge* (Brown et al., 2014). This is often termed *contextualization*. Specifically, “The more you can explain about the way your new learning relates to your prior knowledge, the stronger your grasp of the new learning will be and the more connections you create that will help you remember it later” (Brown et al., 2014, p. 5). This statement assumes that teachers’ prior knowledge is correct, which may not always be the case.

By interacting with others, teachers can “check for understanding” to ascertain if they have the new learning accurately assimilated and are not being misled by inaccurate prior knowledge. Teachers also bring many experiences to their learning situations that they often use as reference points for processing new information. As with prior knowledge, prior experience can be a double-edged sword—a plus or minus for teachers correctly assimilating new information (Knowles as cited in National Highway Institute, n.d.).

Teachers *extracting* key concepts, ideas, and underlying principles from new information; organizing this information *in a mental model* that is logical and makes sense to them, and connecting this with prior knowledge is an excellent learning strategy. A learning approach similar to the “mental model” is the constructivist learning strategy that advocates teachers *construct* or interpret newly learned knowledge *in logic that is understandable to them* and in their language or terms. Specifically, teachers need to process and construct the newly learned information in the way it makes sense to them—their context—and be able to accurately explain the newly learned knowledge to others.

Ultimately, the teacher must convert the knowledge learned to usable skills and competencies that translate into enhanced education for children. A teacher’s mastery of a new skill or competency is usually a gradual increase of knowledge, conceptual understanding, and judgment that, with time and practice, is transitioned into the new skill or competency (Brown et al., 2014).

Learning is not always initially recall-based, *per se*. *Generative learning*—with similarities to extracting and constructivism—entails a teacher attempting “to solve a problem without the benefit of having been taught how” (Brown et al., 2014, p. 94). The point of generative learning is that the teacher “generates” the answer rather than recalling it. Generative learning is also called discovery learning because the teacher assembles pieces of information to

determine their relationships and causation, thus “discovering” the logical answer. Recall does come into play, though, for future use and is aided by the teacher’s experience in generating and discovering the steps to solve a problem.

Massed practice is attempting to learn a concept or skill with the “practice-practice-practice” approach in one long session (e.g., multiple hours) because it is assumed that the concept or skill will be “burned into a teacher’s memory” (Brown et al., 2014, p. 47). Teachers who have experienced day long—that become a “long day”—professional development sessions that concentrate on the sustained practice of newly acquired knowledge have experienced the massed practice approach. Using *spaced practice/repetition* (also called *distributed practice*) through several shorter sessions is more effective for retaining information over time than the massed practice approach (Baddeley, 1997). “Gains achieved during massed practice are transitory and melt away quickly” (Brown et al., 2014, p. 10).

During continuous massed practice a type of fatigue builds up that interferes with performance. However, this fatigue dissipates during rest periods, so overall performance is better if frequent rest periods are allowed by using distributive practice (Mazur, 2013; Hasetine, 2018). The bottom line is: “Practice is far more effective when it’s broken into separate [shorter] periods of training that are spaced out” (Brown et al., 2014, p. 47).

Interleaving means studying several different—but related—skills in one learning session (Brown et al., 2014). This is in comparison to the traditional learning approach of studying only the knowledge for one concrete skill in a learning session. While this may seem counterintuitive to some teachers, it works. Interleaving “boosts learning by encouraging connections between and discrimination among closely related topics” (Agarwal & Roediger, 2018/2019, p. 9). While interleaving may initially slow down a teacher’s learning a concept, it will eventually result in great *retention over time*.

Teachers may be partial to a particular *learning style* (e.g., visual, auditory, or kinesthetic) and perceive that this is the best way, and in some instances the only way, they can learn. As Brown et al. (2014) observe: “The idea that individuals have distinct learning styles has been around long enough to become part of the folklore of educational practice and an integral part of how many people perceive themselves” (p. 131). Tokuhama-Espinosa (as cited in Heller, 2018/2019) notes that, regarding the learning styles philosophy, it “has been debunked many times” by research (p. 27).

Teachers can effectively learn through all learning styles. Multiple forms of intelligence, through various learning styles, facilitate effective learning (Gardner, 1993). It is best for teachers to “go wide” and draw on all their aptitude and not be limited by using only a preferred learning style (Brown et al., 2014, p. 4).

Metacognition is a learning strategy that aids teachers in becoming more self-sufficient learners by helping them understand and regulate their learning (Ketter, 2017; Shank, 2017). Metacognition stresses teachers are becoming intentionally aware of their thoughts and how they think in the context of learning new information. It is sometimes described as *thinking about thinking/learning*, judging one’s own learning performance accurately, and avoiding illusions of knowing something one really has not successfully learned (Dunning & Kruger as cited in Brown et al., 2014, p. 121).

Metacognition stresses teachers taking the initiative to be “active participants in their learning experiences” (Bell, Tannenbaum, Ford, Noe, & Kraiger, 2017, p. 23). It emphasizes teachers taking the initiative to become more self-directed learners by specifically assessing what they need to learn (based on previous experience), how to best learn the new information, and

periodically reflecting on their progress and making needed adjustments. Teachers need to think about—and analyze—how they most efficiently and effectively learn new content by “using lessons learned in previous experiences to make future learning experiences work better” (Shank, 2017, p. 44). Metacognition stresses teachers being able to “regulate” their knowledge about how they learn *to maximize* learning at a given point in time (Zepeda, Hlutkowsky, Partika, & Nokes-Malach, 2018, p. 1).

Shank (2017) indicates that metacognition represents teachers *owning their learning*. This implies teachers taking the initiative to seek out new knowledge and skills in relationship to: (1) staying up-to-date on the skills and competencies needed to perform their current job effectively and (2) anticipating needed future attributes to be competitive in their professional field, enhancing their career development, and better meet the needs of children. Najmael and Hindjad (as cited in Das, 2016) observe that teachers well-versed in practicing metacognition often develop enhanced cognitive ability that results in *cognitive adaptability astuteness*, which is being more effective at dealing with change in the work environment.

Closing Thoughts

PreK-12 teachers have numerous avenues for professional development that are aimed at aiding them in “being their best” to serve children effectively. Just as the design and delivery of professional development are crucial for its effectiveness, so are the teachers’ skills pertaining to learning effectively during professional development activities. Teachers can maximize their learning for career sustainability and professional growth through the effective application of the following learning concepts and processes: retrieval practice, elaboration, proper use of prior knowledge, extracting, constructivism, generative learning, massed practice, distributed practice, interleaving, and metacognition.

References

- Agarwal, P. K., & Roediger, H. L., III. (2018/2019, December/January). How cognitive psychology informs classroom practice. *Phi Delta Kappan*, 100(4), 8-12.
- Baddeley, A. (1997). *A human memory: Theory and practice*. New York, NY: Psychology Press, Taylor & Francis.
- Bell, B. S., Tannenbaum, S. I., Ford, J. K., Noe, R. A., & Kraiger, K. (2017). *100 years of training and development research: What we know and where we go from here*. Ithaca, NY: Cornell University ILR School. Retrieve from digitalcommons.ilr.cornell.edu
- Brown, P. C., Roediger, H. L., III, & McDaniel, M. A. (2014). *Make it stick. The science of successful learning*. Cambridge, MA: The Belnap Press of Harvard University Press.
- Crede, M. (2018). What shall we do about grit: A critical review of what we know and what we don’t know. *Educational Researcher*, 47(9), 606-611.
- Dana, J. C. (2018). Escape from the zero-learning zone. *Educational Leadership*, 76(3), 20-26.
- Das, T. K. (Ed.). (2016). *Decision-making in behavioral strategy* (pp. 49-82). Charlotte, NC: Information Age.
- Duckworth, A. (2016). *Grit: The power of passion and perseverance*. New York: NY: Simon and Schuster.
- Gardner, H. (1993). *Multiple intelligence: Theory in practice*. New York, NY: Basic Books.

- Greco, A. (2016). Guiding the hand of self-directed learning. *Talent Development*, 70(9), 72-73.
- Hasetine, E. (2018). Extraordinary feats your brain can perform. *Psychology Today*, 51(6), 54-63.
- Heller, R. (2018/2019). *What we know (and what we think we know) about the learning brain*. *Phi Delta Kappan*, 100(4), 24-30.
- Jones, B. K. (2018). An insider's perspective on transforming PD. *Educational Leadership*, 76(3), 36-42.
- Ketter, P. (2017). Brain science and talent development. *Talent Development Journal*, 71(4), 6.
- Mazur, J. E. (2013). *Learning and behavior*. Boston, MA: Pearson.
- Miner, M., Coane, J. H., Bolard, S. C., Cooney, L. H., & Albat, M. (2018). The benefits of retrieval practice depends on item difficulty and intelligence. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 44(9), 1474-1486.
- National Highway Institute. (n.d.). *Principles of adult learning and instructional design* (pp. 3-4). Retrieved from <https://www.nhi.fhwa.dot.gov/downloads/freebies/172/pr%20pre-course%20reading%20assignment.pdf>
- Rebora, A. (2018). Redefining teacher learning for a new era. *Educational Leadership*, 76(3), 7.
- Rodman, A. (2018). Learning together, learning on their own. *Educational Leadership*, 76(3), 12-18.
- Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012). The science of training and development in organizations: What matters in practice. *Psychological Science in the Public Interests*, 13(2), 74-101.
- Shank, P. (2017). Self-sufficient learners make successful workers. *Talent Development Journal*, 71(4), 43-46.
- Stewart, V. (2018). How teachers around the world learn. *Educational Leadership*, 76(3), 28-35.
- Vroom, C. (2017). Professional learning networks. *Principal Leadership*, 17(7), 52-54.
- Wang, J. C. M., Kirschner, P. A., & Tsai, C. C. (2018). The role of collaboration, computer use, learning environments, and supporting strategies in CSCL: A meta-analysis. *Review of Educational Research*, 88(6), 799-843.
- Weintraub, P. (Ed). (2018). *The science of personality* (pp. 30-35). New York, NY: Centennial Media.
- Zepeda, C. D., Hlutkowsky, C. O., Partika, A. C., & Nokes-Malach, T. J. (2018, October 29). Teachers' supports of metacognition through classroom talk and its relation to growth in conceptual learning. *Journal of Educational Psychology* (Advance Online Publication). Retrieved from <http://dx.doi.org/10.1037/edu0000300>