Designing a Professional Development Workshop on Integrating Technology and Data Analytics Across the Curriculum

---

1. Analyze
    a. Conduct a needs assessment to identify teachers' current levels of technology and data analytics skills (Lawless & Pellegrino, 2007).
    b. Define the workshop objectives based on the ISTE Standards for Educators (International Society for Technology in Education, 2017).
    c. Analyze the available technology tools and resources supporting data-driven instruction (Mandinach & Gummer, 2016).
2. Design
    a. Develop a workshop agenda that covers critical topics such as (Desimone, 2009):
    b. Fundamentals of data literacy and data-driven decision-making
    c. Integrating technology tools for data collection, analysis, and visualization
    d. Designing authentic, data-rich learning experiences across subject areas
    e. Using data to differentiate instruction and personalize learning
    f. Apply adult learning principles and active learning strategies to engage participants (Knowles et al., 2015).
    g. Create a workshop evaluation plan that assesses participants' learning, application, and impact (Guskey, 2002).
3. Develop
    a. Curate and develop workshop materials, such as presentations, handouts, and digital resources (Koehler & Mishra, 2009).
    b. Create hands-on activities and case studies that allow participants to practice using technology and data analytics tools (Ertmer et al., 2015).
    c. Develop a workshop website or learning management system to house resources and facilitate ongoing collaboration (Lock, 2006).

4. Implement
    a. Deliver the workshop using a blended format that combines face-to-face sessions with online components (Owston et al., 2008).
    b. Provide opportunities for participants to collaborate, share ideas, and provide feedback to one another (Voogt et al., 2015).
    c. Offer ongoing support and coaching to help participants implement their classroom learning (Knight, 2007).
5. Evaluate
    a. Administer post-workshop surveys and interviews to gather feedback on participants' experiences and learning (Lawless & Pellegrino, 2007).
    b. Collect and analyze data on participants' implementation of technology and data analytics strategies in their classrooms (Desimone, 2009).
    c. Use evaluation data to improve future iterations of the workshop and demonstrate its impact on teacher practice and student learning (Guskey, 2002).

References:

- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. Educational Researcher, 38(3), 181-199.
- Ertmer, P. A., Ottenbreit-Leftwich, A., Sadik, O., Sendurur, E., & Sendurur, P. (2015). Teacher beliefs and technology integration practices: A critical relationship. Computers & Education, 59(2), 423-435.
- Guskey, T. R. (2002). Does it make a difference? Evaluating professional development. Educational Leadership, 59(6), 45-51.
- International Society for Technology in Education. (2017). ISTE standards for educators. https://www.iste.org/standards/for-educators
- Knight, J. (2007). Instructional coaching: A partnership approach to improving instruction. Corwin Press.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2015). The adult learner: The definitive classic in adult education and human resource development (8th ed.). Routledge.

- Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? Contemporary Issues in Technology and Teacher Education, 9(1), 60-70.
- Lawless, K. A., & Pellegrino, J. W. (2007). Professional development in integrating technology into teaching and learning: Knowns, unknowns, and ways to pursue better questions and answers. Review of Educational Research, 77(4), 575-614.
- Lock, J. V. (2006). A new image: Online communities to facilitate teacher professional development. Journal of Technology and Teacher Education, 14(4), 663-678.
- Mandinach, E. B., & Gummer, E. S. (2016). What does it mean for teachers to be data literate: Laying out the skills, knowledge, and dispositions. Teaching and Teacher Education, 60, 366-376.
- Owston, R., Wideman, H., Murphy, J., & Lupshenyuk, D. (2008). Blended teacher professional development: A synthesis of three program evaluations. The Internet and Higher Education, 11(3-4), 201-210.
- Voogt, J., Laferrière, T., Breuleux, A., Itow, R. C., Hickey, D. T., & McKenney, S. (2015). Collaborative design as a form of professional development. Instructional Science, 43(2), 259-282.