

A Window of Opportunity- PD with a Different View

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Abstract

A case could be made that past reform efforts in science education professional development (PD) have often been ineffective because they are unsuccessful due to not taking teachers' existing knowledge, experiences, and thoughts into account. This project will use teacher input to develop a workshop series utilizing ICORE experiences and equipment. A pre/post survey will be used to inventory teacher experiences, workshop modules developed to meet the learning needs of the teachers, final assessment of teacher competence and confidence will be completed.

Rationale

Based upon the belief that PD is something that should be professional and developing, this project starts with the learner/teacher in mind. Teachers are told what they should have for PD rather than being given a window to look out and see what they want and need for themselves and their learners. This project would be their opportunity to buy into PD that they would see as useful for student learning and to support bioscience concepts. In addition, this project would provide a stepping stone to further experiences at the University of Florida CPET- ICORE program.

Teacher PD should be designed to support innovative instructional materials as related to the teachers' customized instruction. The use of effective PD should permit teachers to modify instruction/PD experience to meet the needs of the learner not the strict confines of the intended use from a PD experience. Teacher should be able to go from window to window, finding the point of view that works for their learners.

Description of Teaching Unit

- Gather data relating to experiences during ICORE from Experimental science teachers in my district, there are nine.
- This data collection/survey would include but is not limited to the types of ICORE/bioscience experiences they have been exposed to and their level of competence with those techniques. Techniques would include: pipette skills, simulation arrays, running ELISA and gels, DNA and protein extractions, spectrograph analysis, and making solutions of various concentrations. All of these tasks may be required by the Experimental science teachers, which may or may not be part of their skills set.
- Once this survey has been completed, a series of workshop will be lined for on Wednesday afternoons or an agreed upon afternoon/date for the Experimental science teachers (Exp teachers) to participate. A pre and post test will be given to the Exp teachers to indicate their starting proficiency and ending proficiency.
- Exp teachers will be asked to complete the data collection/survey taken earlier to explore their level of competency/comfort using techniques.
- After Exp teachers have completed and indicated a level of competency with the equipment used, they will be able to sign out CPET lockers through me, and I will assist them in their classroom with their students during the activities. Also individual students, based upon the Exp teachers information/experience could arranged a time to meet with me and together we could perform tests.

Data Collection

1. Pre and post survey on competency level with equipment/technique
2. Analysis of need for PD
3. Pre and post test for equipment/technique
4. Exit interview about experience- competence and confidence levels (qualitative in nature)

Equipment lockers and UF visit

After the completion of the workshop modules, teachers would attend a UF campus visit to the Emerging Pathogens lab and the ICRB. This would provide a window into the experiences and equipment available to the teachers with participation in one of the UF-CPET summer programs. Teachers would be able to sign out lockers through me and use with my assistance.

ICORE summer institute elements and UF connections

Specific elements of the ICORE experiences would include but limited to pipette skills, simulation arrays, running ELISA and gels, DNA and protein extractions. Continue the conversation with UF about bringing student groups to UF for a bioscience experience as well as development of ongoing project with SCPS and UF.

References

van Driel, J., Beijaard, D., Verloop, N. (2001). Professional development and reform in science education: The role of teachers' practical knowledge, *Journal of Research in Science Teaching* Volume 38, Issue 2, pages 137–158, February 2001.

Reforming secondary science instruction

Edited by: Julie Gess-Newsome, Julie A. Luft, and Randy Bell
NSTA press 2009

Science as Inquiry in the Secondary Setting

Edited by: Julie Luft, Randy L. Bell, and Julie Gess-Newsome
NSTA Press 2007

Budget and budget justification

Borrow lockers from UF CPET

Items	cost
8 E-Gel units	\$150
PCR Kit	\$64.00
total	\$214.00

