Application of the Guidelines for Effective Elementary Science Teacher Inservice Education

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Historically, elementary science teacher inservice has not been an effective means of improving science teaching for most elementary teachers. Guidelines for Effective Elementary Science Teacher Inservice Education were developed by Klein (2001) to address this need. This paper illustrates, through a review of program evaluation documentation, how the guidelines were implemented in an elementary science teacher inservice education program.

Introduction

There is agreement within the science education community that one way to improve elementary science teaching is to provide quality elementary science teacher inservice education (Crawley, 1987; Henry, 1947; National Research Council [NRC], 1996a; Prather, 1993; Weiss, 1978); however, teachers have not found many inservice programs sufficient to meet their needs (Bethel, 1989; Evans, 1986; Joyce & Showers, 1993; Luke, 1980; Yager, 1992). Haney and Lumpe (1995) and Evans (1986) offered suggestions for developing successful science teacher inservice programs. Klein (2001) presented 18 guidelines specifically developed for elementary science teacher inservice programs.

In this study, documentation from an elementary science teacher inservice program were examined to see if, and how, the inservice program utilized the Guidelines for Effective Elementary Science Inservice Education offered by Klein (2001). These guidelines, presented in Table 1, were developed through an extensive review of research on how to plan, implement, and evaluate effective science inservice programs.
### Guidelines for Inservice Planning

1. **Collaborative Effort**: Programs should involve a collaborative approach when planning, implementing, and evaluating a program.

2. **Well-Planned**: Programs have a thorough planning process.

3. **Needs Assessment**: Programs should be based on teacher, school, and community needs.

4. **Clear Goals and Objectives**: Programs should have clear goals and objectives that address the identified needs.

5. **Ongoing and Developmental**: Programs should adapt to the changing needs of the teachers and provide continuous support.

6. **Incentives Provided**: Programs should provide teachers with benefits to encourage participation and follow-through.

7. **Principals Involved**: Programs should involve the principals to provide support for the teachers and to encourage school reform.

8. **School-Based**: Programs should use the school site as the focus of activities.

9. **Complex and Ambitious**: Programs need to be challenging and complex to initiate teacher change.

10. **Comprehensive Evaluation**: Programs need to have well-executed, formative and summative evaluations.

### Guidelines for Inservice Instruction

11. **Provide Variety of Instructional Strategies and Model Good Teaching Practices**: Programs should provide instruction that models good teaching practices and includes a variety of instructional strategies.

12. **Facilitate Skill Enhancement and Acquisition**: Programs should provide opportunities for teachers to practice these new skills in a supportive environment.

13. **Allow for Teacher Choices**: Programs should provide teachers with opportunities to decide what program activities/components would best meet their needs.

14. **Use Adult Learning Strategies**: When modeling best teaching practices, adult-learning strategies must be employed.

### Guidelines for Inservice Follow-up

15. **Provide School-Based Support**: Programs should involve the school in providing financial, instructional, and moral support to the teachers involved in the program.

16. **Provide Continuous Support**: Programs should offer follow-up support for teachers as they continue their professional development.

### Guidelines Related to Inservice Outcomes

17. **Change Teacher Behavior**: Programs should focus on changing teacher behavior.

18. **Build Teacher Self-Confidence**: Programs should improve teacher self-confidence, which is a factor in improving their teaching.