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Teacher Professional Development: Using Local Resources to Engage Teachers and Students in Learning

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Teacher Professional Development: Using local resources to engage teachers and students in learning

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ABSTRACT

Background: Multiple studies on teacher learning indicate highly positive results when professional development is content-focused and coupled with active learning. In addition, an overall coherence to state and national standards can have a positive influence on enhancing the knowledge and skills of teachers, thus bringing about changes in teaching practice and K-12 student learning. For the past three years, site-based summer science courses, with spring preview and fall follow-up, were conducted to enhance the content knowledge and pedagogy of Georgia public school science teachers in the area of ecology as they became acquainted with the ecology of coastal Georgia. Teachers spent significant time investigating Jekyll Island, Sapelo Island, and Cumberland Island, as well as the St. Mary’s River and the Okefenokee National Wildlife Refuge. In this time of economic constraints, the week-long on-site course provided teachers with video lesson segments for use in their classrooms, providing virtual standards-based fieldtrips for their students. Additional goals were to provide opportunities for investigation and inquiry, and to encourage the application of new knowledge and skills in the classroom setting.

Method: Mixed-method quantitative and qualitative tools were used to evaluate course impact on teacher participants and their K-12 students. Tools included science efficacy and outcome surveys, teacher-made artifacts and pre/post tests.

Results: Science efficacy and outcome surveys indicated that the teacher participants increased their confidence for teaching ecological concepts. In addition, learning assessment (pre/post) demonstrated knowledge gains for both teacher participants and their K-12 students. Through the review of teacher-created field notebooks, lesson plans, laboratory activities, student assessment instruments and surveys, it is apparent that place-based activities are appropriate and useful in the K-12 setting. There is also evidence that teachers apply the place-based use of local resources once they return to their own classrooms.

Conclusion: The place-based science course provided effective professional development for teacher participants; the project resulted in additional benefits to K-12 students.

Teacher Quality Partnership Criteria

• Partnerships between:
  – Georgia Southern University College of Education:
    • teacher preparation unit
  – Georgia Southern University College of Science and Math, Department of Geology:
    • content unit
  – Additional local agencies:
    • U.S. Fish and Wildlife Service, Okefenokee National Wildlife Refuge
    • National Park Service, Cumberland Island National Seashore
    • Sapelo Island National Estuarine Sanctuary
    • Georgia Department of Natural Resources
    • High-need Local Educational Agency (LEA)

RESEARCH ON EFFECTIVE PROFESSIONAL DEVELOPMENT

Multiple studies on teacher learning indicate highly positive results when professional development
• encourages higher order thinking skills and laboratory practice,
• adheres to state and national standards, and
• is content-focused and coupled with active learning.


COURSE OVERVIEW

• Spring preview meeting
• Summer week on-site in field (Okefenokee Swamp, Barrier Islands, St. Mary's River)
• Fall follow up meeting; year end data collection

All expenses paid through Improving Teacher Quality grant. Title II funds administered through University of Georgia.

METHODOLOGY AND DATA COLLECTION

<table>
<thead>
<tr>
<th>Course Goals</th>
<th>Evaluation Questions</th>
<th>Evaluation Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1. Enhance teacher attitudes and increase interest in teaching ecology</td>
<td>Did the course effect change in teachers’ attitudes toward and interest in teaching ecology?</td>
<td>Participant survey</td>
</tr>
<tr>
<td>#2. Increase teacher content knowledge about ecology</td>
<td>What effect did the course have on teacher content knowledge?</td>
<td>Pre/post teacher content knowledge test</td>
</tr>
<tr>
<td>#3. Increase teacher use of effective hands-on strategies for teaching ecology</td>
<td>How did the course affect teacher pedagogy?</td>
<td>Teacher Artifacts</td>
</tr>
<tr>
<td>#4. Increase students’ ecology content knowledge</td>
<td>What effect did the course have on student content knowledge?</td>
<td>Lesson Plans</td>
</tr>
<tr>
<td>#5. Increase teachers’ use of local resources by immersion and modeling</td>
<td>What are the advantages and limitations of on-site, place-based instruction using a local resource?</td>
<td>Lab Activities</td>
</tr>
</tbody>
</table>

ANALYSIS AND CONCLUSIONS

# 1. Did the course effect change in teachers’ attitudes toward and interest in teaching ecology?

The results from the Science Teacher Efficacy Belief Instrument (STEBI), suggest a statistically significant increase in teacher efficacy for teaching ecology indicating that place-based professional development for teachers can improve teacher efficacy for the teaching of ecology.

# 4. What effect did the course have on student content knowledge?

These results indicate an improvement in the classroom assessment scores of students whose teachers attended place-based professional development.

# 5a. What are the advantages of on-site, place-based instruction?

“The field work is by far the strongest point of the project by allowing classroom teachers to experience the standards first hand and bring back valuable lessons to the classroom.” – Teacher Participant

ACKNOWLEDGEMENTS

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