

Preparing a University Agriscience Teaching Methods Class to Design, Deliver, and Assess a Preservice Climate Science Teaching Activity

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Educational Partnership

- AXED 484: Methods of Teaching Biological, Earth, and Physical Sciences in Agriculture
- NMSU Extension and Research Youth Agricultural Science Center (NMSU-ERYASC)
- Integrating Extension activities with academics

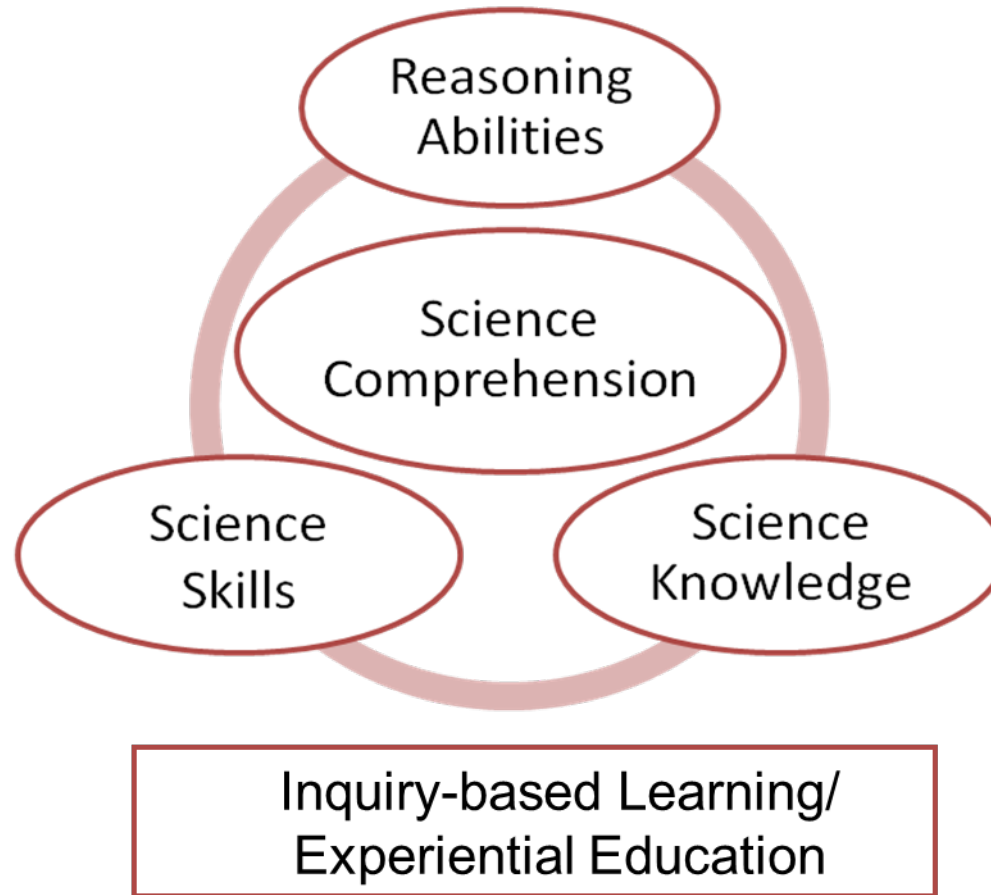


CES and AES/Hatch Project

- Weather and climate science curriculum for middle school-aged youth
- Potential to adapt curriculum for 4-H project and after school, and summer enrichment programs
- Supplemented by Enchanted Life Foundation funding



Science Comprehension Conceptual Model



Skelton, P., B. Seevers, T. Dormody, and F. Hodnett. 2012. A conceptual process model for improving youth science comprehension. *Journal of Extension*, 50(3), Article 3IAW1.

Pre-service Teacher Education

- Developing and testing lessons during NMSU-ERYASC agriscience field days
- Fall 2017 piloted lessons
 - For the 7th grade: Understanding the difference between weather and climate (including graphing data sets)
 - For the 8th grade: Accessing (with class I-Pads) and analyzing local web-based weather and climate data <http://scacis.rcc-acis.org/> (NOAA Regional Climate Centers Database)



Results

- Feedback from university students (n=14)
 - The teaching experience...
 - Highlighted the importance of effective classroom management
 - Allowed the university students to reflect after each lesson and to make team adjustments to content and content delivery throughout the day
 - Led to self-reflection and improvements in individual teaching approaches



Results

- 7th grade lesson results (n=99)
 - Six-question multiple choice post-quiz
 - For Science Knowledge, students averaged 86.4% correct answers
 - For Science Skills, students averaged 75.3% correct answers
 - For Reasoning Abilities, students averaged 82.4% correct answers



Results

- 8th grade lesson results (n=85)
 - Six-question multiple choice post-quiz
 - For Science Knowledge, students averaged 81.2% correct answers
 - For Science Skills, students averaged 72.4% correct answers
 - For Reasoning Abilities, students averaged 78.6% correct answers



Conclusions

- University student feedback indicated that the agriscience field day was a valuable learning experience
- Middle school student results suggest the need for these lesson modifications
 - Lesson content
 - Expand both lessons to cover two class periods
 - Improve evaluation rubrics to standardize quality of formative and summative assessment

Future Directions

- Test the whole weather and climate science unit of instruction in January 2019
- Develop a 4-H/after school/summer enrichment climate science project
- Install a weather station at the Center to collect comparative data
- Integrate the science comprehension model into grades K-5 and 9-12 instruction



Thank You!



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