

Use of Freshman Service Learning and Learner-Centered Instruction to Introduce K-6 Students to Agriculture

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UNIVERSITY 101- FRESHMAN YEAR EXPERIENCE-3 credit course

- Introduces students to knowledge, skills and attitudes that promote academic and interpersonal success
- Taught for first time in agriculture college in Fall 2011

INNOVATION: 3-GALLON, 3-LETTUCE HYDROPONIC BUCKET PROGRAM FOR K-6 STUDENTS

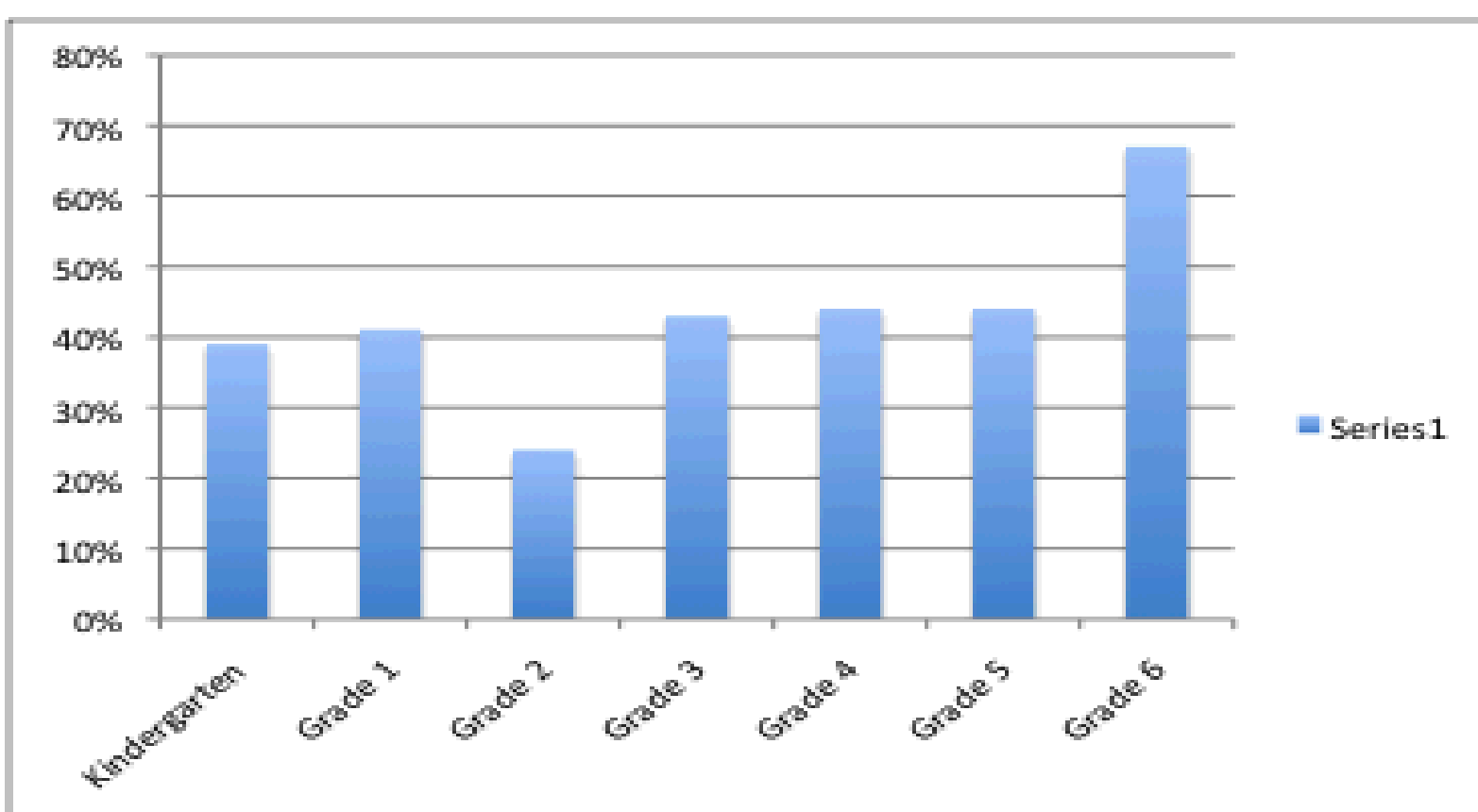
- Pilot project to teach K-6 students at Hilo Union School hydroponic gardening added to agriculture college version of University 101 -- benefits of applied learning
- Opportunity to become stewards of the land and teachers of sustainability provided to college and K-6 students -- water and fertilizer efficiency of hydroponic gardening

MENTORING CASCADE ESTABLISHED TO REACH ALL 494 STUDENTS

- College students taught 6th graders, helped 6th graders teach kindergarteners
- 6th graders taught and mentored 3rd and 5th graders, helped 3rd and 5th graders teach 2nd and 4th graders
- Process repeated until all 494 students grew their own 3-lettuce hydroponic bucket. (49% Native Hawaiian/Pacific Islander/Asian with 82% qualifying for free or reduced cost lunch program)
- 6th graders checked all buckets for problems and were acknowledged each time
- Creativity encouraged, students developed an “adoption clinic” where owners/stewards of over planted containers could share their extra sprouts with other students who might not have sprouted seeds
- Extra “baby” seedlings (some with names) planted and grown in two 8X8 foot soil boxes for tomato, corn, sunflower and other vegetables

OUTCOMES: LET US DO MATH 2011-2012 - Debra Cheever-Follett

- Hydroponic buckets and beds used once a week in a 30 minute session for 6th graders (October 2011 through May 2012)
- Direct instruction included math concepts of perimeter, volume, shapes, angles, and coordinate geometry, as well as science and agriculture concepts of plant growth and nutrition
- Increasing the percentage of students performing at or above grade level on the Hawaii State Assessment (HAS) to 68% established as school goal
- In 2010-2011 the 6th grade math class had no garden program and only 37% of the students were on grade level



- In 2011-2012 nearly 70% of the 71- 6th grade students, including 14 special education students, scored at grade level in math on the HAS
- One special education student achieved a 55 point increase
- The 6th grade achieved the highest performance at grade level (see graph, left)

COMMUNITY: CONFIDENCE, COOPERATION AND CONTRIBUTION

- Every student in the school took ownership/stewardship of a bucket and took home lettuce for their family that they had grown themselves.
- The students of Hilo Union School working together produced more than 800 pounds of lettuce, which was shared with the school community and also served for snacks in the afternoon. The last lettuce crop was shared with the Food Bank of Hawaii (14 pounds).

Showing students how to grow and enjoy consuming their own vegetables was the highlight of this pilot program. This was especially true because on Day 1 only 3 of 71 - 6th grade students could identify a lettuce plant and only one knew the variety was ‘Romaine’.

*A similar program was started at Keaau Elementary School

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2012 Annual North American College Teachers of Agriculture Conference, June 26 - 29, University of Wisconsin - River Falls



University students and 6th graders teaching four classes of kindergarten students



Some 4th graders harvesting



March 2012 Harvest day 6th grade students mentoring 2nd graders