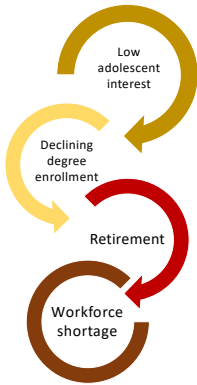


Evaluation of a Three Year, Multidisciplinary Food and Agricultural Workforce Development Program for High School Counselors and STEM Educators

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Introduction



- High school students lack interest, awareness, and exposure to careers in agriculture, food, and natural resources (AFNR)¹⁻²
- Teachers report low competency facilitating AFNR career related activities¹⁻²
- Drexel's Summer Food Science, Urban Agriculture, and Nutrition (FUN) program was developed to address career knowledge gaps among educators

Conceptual Framework

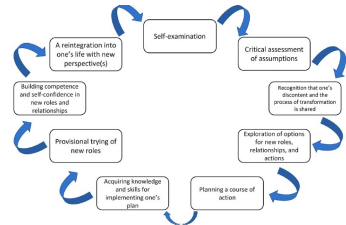


Figure 1. Mezirow's (1997) theory of Transformative Learning³

Methods

Setting

- A four-week, in-person, immersive program took place on Drexel's campus from 2023-2025

Sample

- 61 high school STEM teachers and counselors from the Philadelphia School District.
- Cohort 1 - 2023 (n=16) Cohort 2 - 2024 (n=23), Cohort 3 - 2025 (n=22)

Outcomes

- Knowledge of careers and educational pathways, awareness of career scope, and confidence communicating careers were assessed using a pre and post 24 item 5-point Likert Scale survey.

Statistical Analysis

- Paired t-test to compare pre and post survey scores for each cohort year

Results

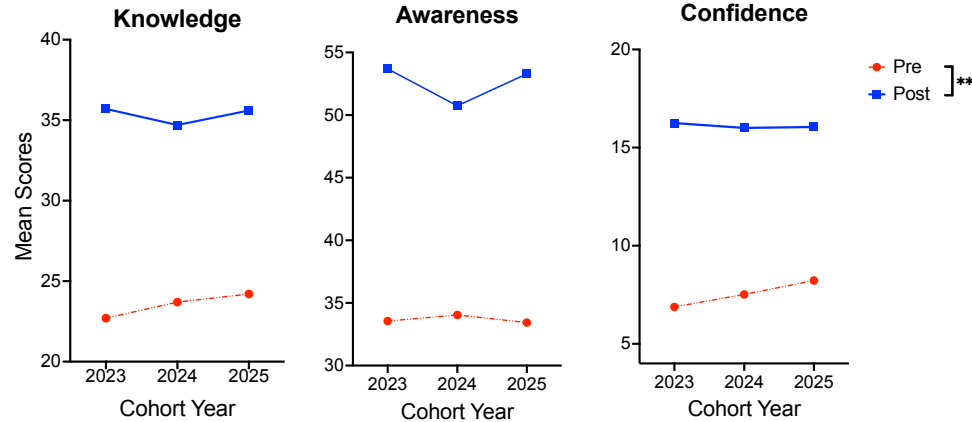


Figure 2. Pre-post changes in knowledge, awareness, and confidence across cohorts (2023-2025)

Visual Highlights From F.U.N Career Awareness Modules



Figure 3. Images illustrate hands-on labs, industry engagement, and field experiences across four career awareness modules

F.U.N. Career Awareness Modules

Learning Activities

Module 1 Food Science

Labs: pH, Refractive Index, Maillard Reaction

Industry Speakers: Food Scientists from KIND, Impossible Foods, NotCo

Field Trip: Food Product Development Center Tour

Module 2 Nutrition

Labs: Body Composition Analysis, Healthy Meal Planning, Community Food Assessment

Industry Speakers: Dietetic Faculty, Sports Dietitian, Community Dietitian

Field Trip: Supermarket Tour with Dietitian

Module 3 Urban Agriculture

Labs: Seed-Sowing, Harvesting & Cooking

Industry Speakers: Urban Farmer, Community Garden Historian

Field Trip: Teaching Farm & Community Garden Tour

Module 4 Culinary Arts

Labs: Knife Skills, Recipe Production, Mock Culinary Service

Industry Speakers: Professional Chefs

Field Trip: Professional Kitchen Tour



REFLECTIVE LEARNING

Design and create lesson plans that integrate what you've learned across the four modules. Develop engaging information materials and a presentation on agricultural science careers and college pathways.

Figure 4. Description of module content and reflective learning assignment

Discussion

Key Findings

- All measured outcomes demonstrate consistently significant pre-post improvements across cohorts
- Variation in baseline and outcome scores may reflect changes in recruitment strategies and program refinements across cohorts; further investigation is warranted

Limitations

- The small, urban sample and use of self-reported surveys may limit generalizability

Recommendations

- Industry collaboration, experiential learning, and reflective assignments may facilitate reshaping of AFNR career perspectives among secondary educators
 - Prioritize interdisciplinary professional learning opportunities for secondary educators to bolster knowledge of diverse agricultural careers and vocational pathways
- ### Future Directions
- Long term student follow up to assess career interest
 - Expand to diverse settings and populations to improve generalizability
 - Qualitative investigation on programming impact is on going

Acknowledgements

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