



Previous Mechanical Experience Among Students in an Introductory Agricultural Engineering Technology Course



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INTRODUCTION

- Understanding students' previous mechanical experiences can help instructors identify appropriate starting points for introductory Agricultural Engineering Technology (AGET) instruction.
- Experiential Learning Theory provides a lens for considering the experiences students bring to new learning situations (Kolb & Kolb, 2017).
- Research on learning in higher education supports attention to students' initial conditions (Gachino & Worku, 2019).
- The purpose of this descriptive analysis was to characterize students' mechanical backgrounds and describe differences in prior exposure across technical subjects in an introductory AGET course.

METHODS

- This analysis used the background and technical-experience sections of a survey administered to the Fall 2026 cohort of AGET 2303, Introduction to Agricultural Engineering Technology.
- Participation was voluntary, and all 43 enrolled students participated.
- Background questions addressed previous coursework and other mechanical experiences.
- Students rated their experience in eight technical areas on a five-point scale ranging from 1 (no previous experience) to 5 (extensive previous experience).
- Findings were summarized using frequencies, percentages, and means.

FINDINGS

OVERALL EXPERIENCE

51.2%

Extensive experience

22 students

37.2%

Some experience

16 students

2.3%

Very little experience

1 student

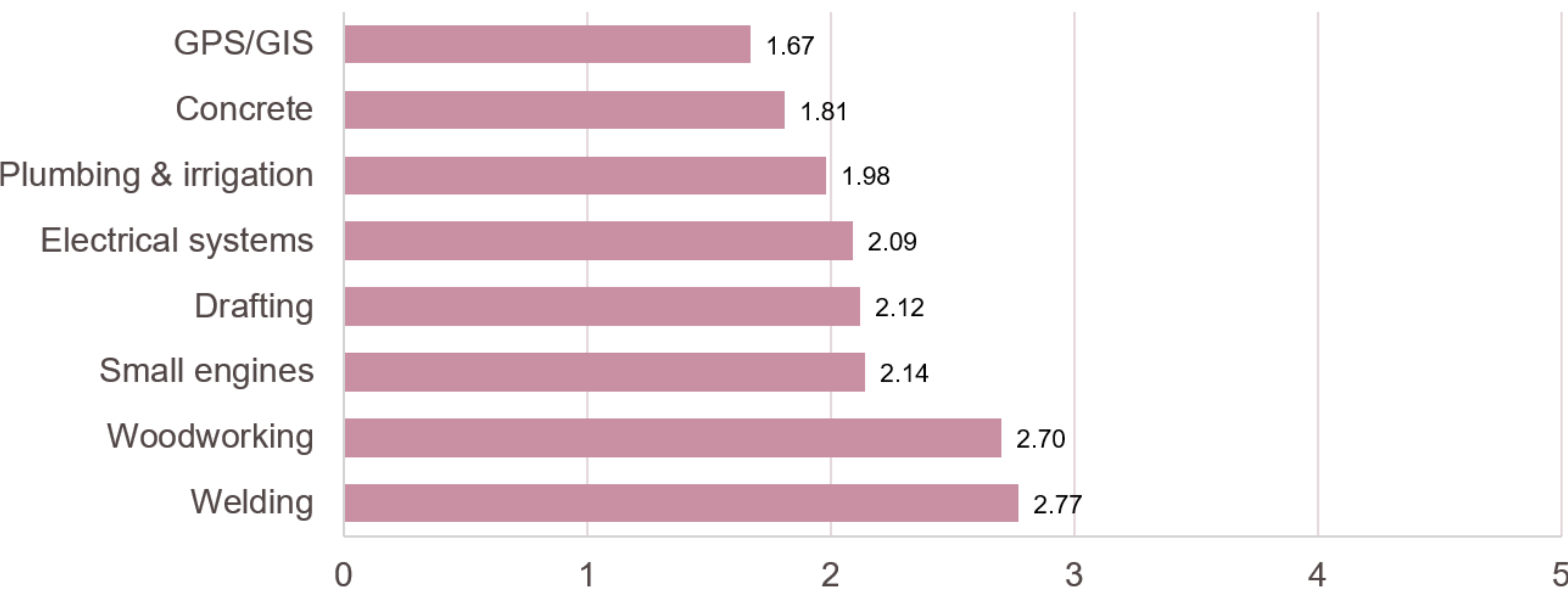
9.3%

No experience

4 students

EXPERIENCE BY TECHNICAL AREA

Mean rating: 1 = no previous experience; 5 = extensive experience



REPORTED NO EXPERIENCE

60.5%

26 of 43 students

GPS/GIS

51.2%

22 of 43 students

Plumbing & irrigation

51.2%

22 of 43 students

Concrete

SOURCES OF PREPARATION

Coursework, farm and ranch activities, employment, family, and FFA

CONCLUSION

- Findings indicate uneven prior exposure across course topics.
- Although approximately half the cohort reported extensive overall experience, all subject-specific means fell below the numerical midpoint of 3 on the 1–5 scale.
- This aggregate contrast supports examining preparation by topic but does not establish inconsistencies within individual students' responses.
- Instructors could use topic-specific assessments, foundational demonstrations, and guided practice to address differences in preparation.
- Self-reported experience ratings should not substitute for direct assessments of safety or technical performance.
- Future research should connect prior experience in specific areas with corresponding practical assessments across multiple cohorts.