Student Computer Use in Undergraduate Agriculture Courses: A 10-Year Study

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Introduction

Information technology plays an important and ever increasing role in agriculture and society (Stout and Lee, 2004). Despite this fact, research has shown that:

- College students have low levels of experience and confidence in performing intermediate and advanced computer tasks (Missenieo and DeOllos, 2005).

- College agriculture courses require only a limited set of fairly low-level computer skills (Hale and Johnson, 2007).

Objectives

- To identify computer tasks required by agriculture faculty in Fall 1999, 2004, and 2009; and
- To determine instructors' plans for required student computer tasks over the next three years.

Methods

Data were collected with mail (1999 and 2004) or Web-based (2009) surveys. Each faculty respondent completed provided responses for a specific, identified course specified on each survey instrument. The survey contained three parts:

- Required computer tasks:
  - List of computer tasks in 8 application areas
    - 34 tasks (1999 and 2004)
    - 39 tasks (2009)
  - Yes or No response option for each task
  - "Other" option in each application area

- Plans for required computer use by area
  - Decrease use
  - Maintain current use
  - Increase use

- Faculty demographics

Completed surveys were received from agriculture faculty teaching undergraduate courses during the fall semesters of 1999 ($n = 63$), 2004 ($n = 55$), and 2009 ($n = 64$). Response rates were:

- 1999 = 92%
- 2004 = 86%
- 2009 = 83%

Results

There was no significant difference in the total number of unique computer tasks required by year, [$F_{(2, 156)} = 2.40$; $p = .090$] (Fig. 1).
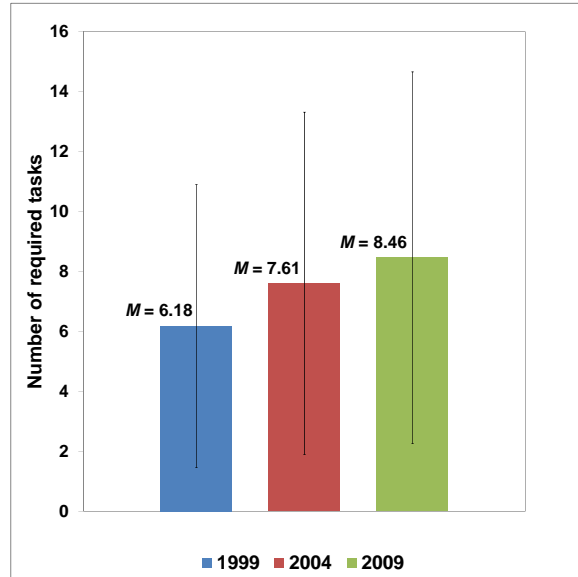

Figure 1. Mean (±1 SD) unique computer tasks by year.

Overall senior-level courses required significantly ($p < .05$) more unique computer tasks ($M = 9.54$), than either freshmen ($M = 4.88$) or junior-level ($M = 6.31$) courses. Computer tasks required in sophomore-level courses ($M = 7.24$) were not significantly different from any other level.

Over the 10-year period computer tasks in the areas of the Internet, e-mail, spreadsheets, and word processing were the most frequently required. There were significant ($p < .05$) increases in e-mail tasks between 1999 and 2004 and Internet tasks between 2004 and 2009 (Fig. 2).
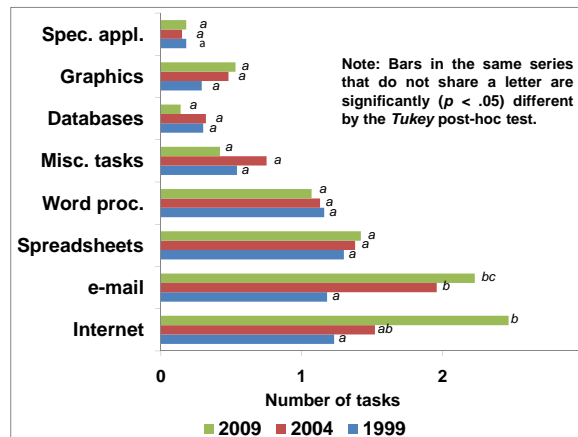

Note: Bars in the same series that do not share a letter are significantly (**$p < .05$**) different by the *Tukey* post-hoc test.

Figure 2. Mean unique computer tasks by area and year.

In 1999 three unique computer tasks were required in 50% or more of courses; by 2009 six unique tasks (including the original three tasks) were required in 50% or more of courses (Fig. 3)
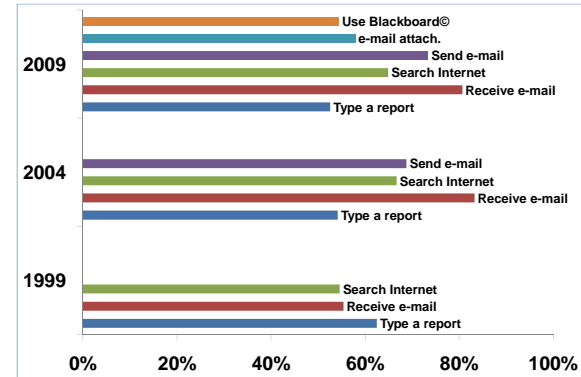

Figure 3. Tasks required in 50% or more courses, by year.

Over the next three years, most faculty planned to either maintain or increase their current level of required computer use in each area. More than 20% of faculty planned to increase use of the Internet, spreadsheets, graphics, and specialized applications. Small percentages of faculty planned to decrease required use of spreadsheets, databases, and the Internet (Fig. 4).
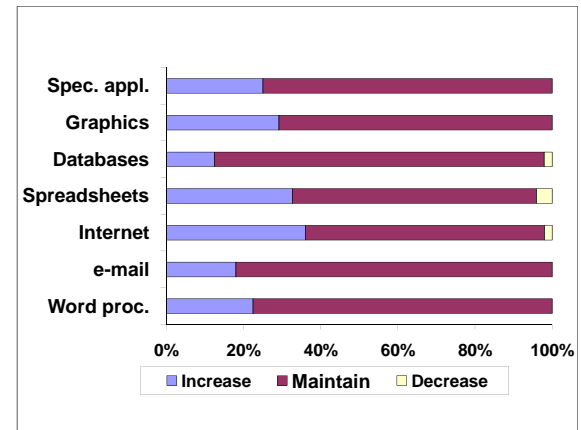

Figure 4. Planned changes In computer over three years.

Conclusions

- Overall required computer use has not significantly increased over 10 years.
- The required use of specific Internet and e-mail tasks has increased significantly.
- The most common required tasks are fairly basic.
- Moderate increases in required use are planned.

References

Available upon request.