

Evaluation of Outcomes Among Participants in the Iowa State University Science with Practice Program

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Introduction & Framework

- Science with Practice provides opportunities for students to learn and work with faculty in research, education, and work experiences.
- Designed to build communication, critical thinking, and technical skills for future academic and career opportunities.
- Involvement in hands-on experiences is formative to post-grad decisions (Borrego et al., 2021).
- Students who make gains in communication and critical thinking can achieve greater academic performance and career satisfaction (Tadese et al., 2022; Sembiring, 2015).
- Kolb’s (1984) experiential learning model was the framework for this study.

Purpose

Evaluate the perceived outcomes of Science with Practice on the academic and professional careers of alumni.

Objectives

1. Describe post-graduate outcomes of program participants.
2. Identify specific skills or outcomes developed based on their participation in the program.

Methods

- Quantitative descriptive study.
- 28 question instrument distributed to all 750 program completers.
- 76 responded, providing a 10.1% response rate.
- Respondents were encouraged to participate up to 3 times using Dillman et al.’s (2014) tailored design method.
- Instrument evaluated by two faculty for face and content validity (Thyer, 2010).
- Prior to analysis, data were de-identified, and standard descriptive statistics were calculated via SPSS (Creswell & Creswell, 2018).

Findings

Respondents most strongly agreed that self-confidence and research skills were enhanced by Science with Practice. Additionally, critical thinking and self-accountability were identified as enhanced.



32 ($f = 42.1\%$) respondents entered the workforce following bachelor’s degree



36 ($f = 47.4\%$) respondents attended graduate school



44 ($f = 57.9\%$) pursued a graduate degree at any point in their career



54 ($f = 71.1\%$) first job was related to their undergraduate field of study

	$\bar{x}$	σ
Self confidence	4.18	0.96
Research skills	4.16	1.14
Self accountability	4.12	0.86
Critical thinking skills	4.12	0.86
Public speaking skills	4.08	0.96
Time management skills	4.00	0.95
Problem-solving skills	3.97	0.95
Written communication	3.92	0.94
Organizational skills	3.87	0.91

Conclusions and Implications

- A majority of responding alumni pursued a master’s or doctoral degree ($n = 44$; $f = 57.9\%$) and found work related to their undergraduate major following graduation ($n = 54$; $f = 71.1\%$).
- Alumni reported employability skills, such as self-confidence ($\bar{x} = 4.18$; $\sigma = 0.96$) and self-accountability ($\bar{x} = 4.12$; $\sigma = 0.86$) as improved.
- Technical skills such as research and written communication were also identified as skills that were developed through the program.

Recommendations

- Engage alumni in interviews to explore how they apply these skills in their careers.
- Conduct another longitudinal study with alumni in a few years to assess changes.
- Work to increase the number of respondents to generate more confidence in findings.
- Encourage other institutions to implement programs modeled on Science with Practice, given the impact on students (Borrego et al., 2021).
- Have an intentional effort to scaffold opportunities for improving organizational skills and written communication, as these skills were the lowest-scoring.

References

Please scan the QR Code to access the references and full abstract.

