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What have you been doing since the publication of your article in JPUR, volume 8?

I have completed a master's degree and am now pursuing a PhD in machine learning for health care at University of Illinois Urbana-Champaign.

What are your career goals?

I would love to become an AI research scientist at a major tech company and make contributions that apply to our daily lives—for example, improving diagnostics from wearables, using language models to assist clinicians, or aiding in discovering medical insights from literature.

How did the research you did as an undergraduate at Purdue impact your current endeavors? What is the value of undergraduate research?

My time at Purdue served as a launchpad due to the experience I gained and allowed me to apply for further internships, which eventually allowed me to pursue a master's and PhD later on.

How did the faculty mentor relationship impact you during your time at Purdue?

My faculty mentor was extremely valuable in terms of general research guidance, helping me write a research abstract for the first time, and aiding me in narrowing down my methodology.

How did the experience of publishing an article in JPUR benefit you? What advice would you give to other undergraduates at Purdue who are interested in contributing to the journal?

It inspired me to pursue more research opportunities. Publishing at Purdue is also a great resume slot that you can use for the future. Don't be afraid to ask your advisor all the questions you are curious about.

What advice would you give to other undergraduates at Purdue who are interested in doing research?

Just do it! It may seem daunting at first, but it isn't once you get into it. Also, it allows you to learn extremely valuable skills such as project management, goal-setting, and self-teaching abilities.

Out of the Box Snapshots

Impact of Active Learning on Future Student Performance

Student researcher: Chufan Gao, Sophomore

Active learning is becoming a widespread practice in higher education. While there is a growing body of literature that describes the effectiveness of active learning during a single semester, the majority of the literature explores active learning effects on student performance throughout one course. This study investigates whether active learning in one course will affect students in a way that allows them to perform better in subsequent courses.

This research traces the impact of an introductory physics course redesigned through Instruction Matters: Purdue Academic Course Transformation (IMPACT), a course development program at Purdue University. IMPACT aims to achieve a greater student-centered environment by incorporating active learning and other innovative educational practices. The impact of the physics course was traced by examining its effects on student grades in subsequent courses not redesigned through the program.

The data analysis examined student grades in four math courses that were taken immediately after the physics course. ANCOVA was used to determine if there is a significant difference in final grades between the subsequent math classes while controlling for previous physics GPA of the students. The fixed factor is whether the physics course was an IMPACT course. The dependent variable is student final grades in the subsequent courses, and the covariate is the final physics grade value.

The results indicated a statistically significant positive effect between being in the IMPACT physics class and higher subsequent course grades in each of the math courses examined (Table 1). The findings support the effective, early introduction of active learning in higher education.

Special thanks to Aylin Celik for research assistance.

Research advisor Clarence Mayhew writes: "I appreciate that this project allowed Purdue undergraduates to use institutional data to answer questions they have about the university. It was rewarding to work with Chufan as he explored the effectiveness of courses redesigned to be active and student-centered upon student achievement in future courses."

Class	Number of Obs.		Mean Grade		Std. Deviation		Variance	
	Non-IMPACT	IMPACT	Non-IMPACT	IMPACT	Non-IMPACT	IMPACT	Non-IMPACT	IMPACT
MA 162	4804	5312	2.58	2.64	1.00	0.99	0.99	0.97
MA 265	3706	4525	2.66	2.72	0.93	0.93	0.86	0.86
MA 261	6953	9009	2.70	2.74	0.94	0.91	0.88	0.83
MA 266	3663	4055	2.79	2.82	0.95	0.96	0.90	0.92
PHY 5172	9513	11198	2.72	2.64	1.00	0.96	1.01	0.93

■ Descriptive statistics for datasets.

Gao, C. (2018). Impact of active learning on future student performance. *Journal of Purdue Undergraduate Research*, 8, 95–96. <https://doi.org/10.5703/1288284316768>

Gao, C. (2018). Out of the box: Impact of active learning on future student performance. *Journal of Purdue Undergraduate Research*, 8.