

Implementing Just-in-Time-Teaching (JiTT) Techniques in the Principles of Economics Course

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JiTT addresses two critical issues raised in recent years about economic education: the relative scarcity of active learning-based teaching methods and the lack of new technology-based instructional innovations. As the original developers of JiTT describe it in their book, *Just-in-Time Teaching: Blending Active Learning with Web Technology* (G. Novak, E. Patterson, A. Gavrin, and W. Christian; 1999), “Just-in-Time Teaching is a teaching and learning strategy comprised of two elements: classroom activities that promote active learning and web-based activities that are used to enhance the classroom component.” The two work together to promote a “feedback loop” that (1) encourages better class preparation by students, (2) provides prompt feedback on students’ conceptual understanding of course material, and (3) promotes “just-in-time” modifications of class activities and discussion.

What is JiTT?

The JiTT strategy is straightforward. Between classes, students complete carefully constructed exercises and submit them electronically using course management software such as Blackboard or WebCT, a web-based form, or simple email, by a preassigned time a few hours before class. These JiTT exercises, or “JiTTs” as we refer to them, are short assignments typically focusing on material that will be covered in the next class – that is, students are required to read ahead on their own to answer the questions. Once submitted, instructors review students’ JiTT responses an hour or two prior to class and use the responses to organize and modify the upcoming classroom session – hence the “just-in-time” label. Excerpts from students’ submissions are presented during the class as the basis for discussion, replacing the traditional lecture, and are used to develop follow-up exercises that groups of students work on in class.

JiTT Promotes a Learning Feedback Loop

The in-class component of the course complements students’ out-of-class JiTT assignments, producing a positive feedback loop that enhances student learning. Because students see their own work presented in class, they develop a heightened sense of ownership of their learning; thus, they are more likely to complete the JiTT exercises and actively participate in the ensuing classroom discussion and activities. As a result, students come to class better prepared and gain more from each class session. In

addition, students receive immediate feedback on their understanding of the concepts covered in the JiTT exercises, providing a “teachable moment” that is absent with traditional homework assignments or quizzes, which provide feedback only with a lag. At the same time, instructors also receive valuable feedback that helps to make in-class teaching and learning more effective. Because the JiTT exercises are completed between classes, instructors can uncover students’ misunderstandings of economic concepts *prior to* class and design classroom activities to overcome these misunderstandings while the concepts are still fresh in students’ minds.

JiTT pedagogy was originally developed in 1996 as part of the *WebPhysics* project led by physics faculty at the U.S. Air Force Academy and Davidson College with support from the National Science Foundation. In recent years the National Science Foundation has supported the expansion of JiTT pedagogy to chemistry, biology, and mathematics courses, in addition to our development of JiTT techniques in economics. Today, over 175 instructors at 73 institutions across the U.S., Canada, Europe, and Israel have adopted the JiTT strategy.

Interested in Finding out More About JiTT?

We are currently in the process of developing a set of teaching tools to help make JiTT easier for you to adopt in your own classroom; these materials, when developed, will be freely available on our JiTT-ECON website. If you’d like to be informed when these materials become available, please send us your email address (at the addresses below) and we’ll include you on our JiTT-ECON mailing list. In the meantime, if you’d like to know more about how JiTT techniques can be used in teaching economics, please contact us – we’ll be glad to answer your questions and share our experiences using JiTT techniques in the classroom.

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By exploiting the communication and instructional efficiencies provided by the web and web-based course management tools and directly linking out-of-class student academic work with classroom-based learning, JiTT promotes increased student participation in the learning process, provides students and faculty with prompt feedback on student learning, and encourages better student preparation for class.

Additional JiTT Resources:

Books:

Novak, Gregor; Patterson, Evelyn; Gavrin, Andrew; and Christian, Wolfgang. (1999) *Just-in-Time Teaching: Blending Active Learning with Web Technology*, Prentice Hall: Upper Saddle River, NJ.

Web Resources:

The Main JiTT Site:

<http://webphysics.iupui.edu/jitt/jitt.html>

The original JiTT homepage, developed for the WebPhysics project. The site provides both detailed and summary descriptions of JiTT pedagogy, along with examples drawn from physics.

Overviews, Presentations, and Research on JiTT:

- <http://webphysics.iupui.edu/webscience/dissemination.html>
- <http://www.aps.org/units/fed/fall2001/novak.html>
- <http://www.educause.edu/ir/library/pdf/EDU0108.pdf>
- <http://webphysics.iupui.edu/JITT/ccjitt.html>
- <http://www.tm.tudelft.nl/secties/fcm/matphy/research/publ/JiTTLeuven2002.pdf>